

# METAL PRODUCTS MANUFACTURING

# MPM

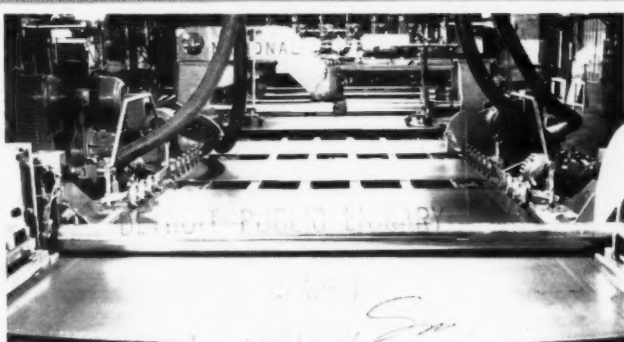
**Serving the Appliance and  
Fabricated Metal Products Industry**

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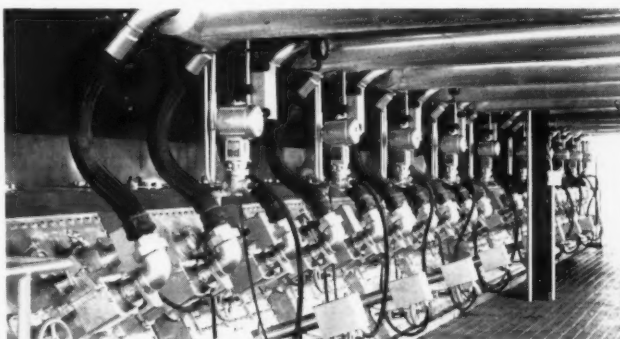
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V. 17 #6

**JUNE 1960**



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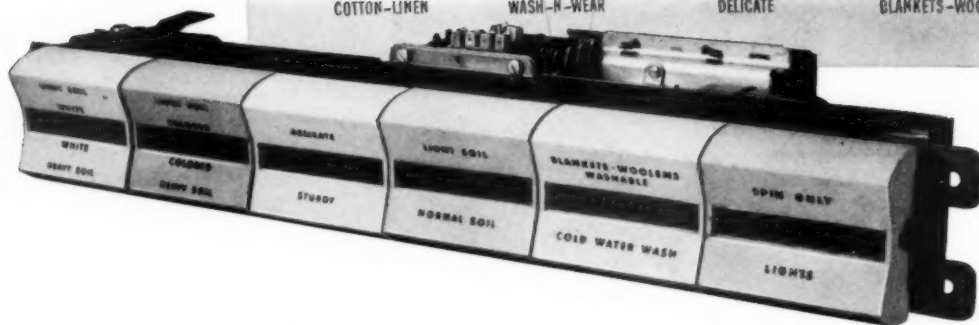
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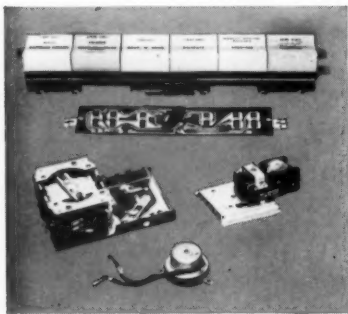
Water Cooler Production at Ebco — Page 33

# FIRST ANNUAL REPORT

ON CC  
CYCLE-SET  
POWER  
TIMER...



## ORIGINAL COMPLETE "ONE-BUTTON" CONTROL SYSTEM



Cycle selector panel  
Printed circuit panel  
Timer section • Cycle selection motor  
Timing motor

Designed to tune in every fabric's favorite washday program—in just one year CC's Power Timer has tripled its acceptance among manufacturers of automatic washers.

Key reason for Power Timer's popularity is that it is a *complete* unit—field proved to offer the widest range of cycle selection. This same integrated design has resulted in unequalled service ease. We call this arrangement our "service split." (See basic components at left.) The average field serviceman can do the job on a single part or total unit, depending on the problem.

And you'll be interested to know that service problems on the Power Timer have been refreshingly few. So well tested is this control that one major user has cut his order for service parts to a small fraction of the original estimate.

Why not see how this integrated system can fit into your production plans. Write today for full details. No obligation of course.

*Creative controls for industry*

**CONTROLS COMPANY OF AMERICA**

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# up to scratch!

The surface film on ZINCGRIP PAINTGRIP protects paint, makes it adhere tightly despite the scratching screwdriver. Not so the untreated half, where paint flakes away when scratched.



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## ARMCO ZINCGRIP PAINTGRIP TAKES PAINT, HOLDS IT TIGHTLY

Fabricate . . . then paint right away. No time out for pretreatment with Armco ZINCGRIP® PAINTGRIP®. This special sheet steel reaches you with a surface uniformly treated to take and hold paint. But its benefits are much more than "skin-deep."

Beneath the paint-preserving surface is a full-weight coating of zinc. And beneath that is strong, ductile steel, specially prepared for its job. Most important, as this special steel is worked into intricate parts, zinc coating and paint-holding film stretch with it. Parts come through completely zinc protected and ready for paint.

Wherever your products need zinc protection, yet must be painted for appearance, it pays to consider ZINCGRIP PAINTGRIP. It's easy on production costs, saves time, promotes lasting paint jobs. Call your nearest Armco

Sales Office or fill in and mail the coupon for complete information.

New steels are  
born at  
Armco

**ARMCO STEEL CORPORATION**  
1980 Curtis Street, Middletown, Ohio

Send more information on Armco ZINCGRIP PAINTGRIP

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Firm \_\_\_\_\_  
Street \_\_\_\_\_  
City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

## ARMCO STEEL



Armco Division • Sheffield Division • The National Supply Company • Armco Drainage & Metal Products, Inc. • The Armco International Corporation • Union Wire Rope Corporation

**HOW HOMMEL USES ELECTRONICS  
TO PROTECT YOUR PRODUCTS QUALITY**



## **HOMMEL FRIT IS CERTIFIED ACCURATE**

In the ceramic industry's most efficient bulk handling system, the ingredients for each batch of Hommel frit are automatically weighed and certified. Electronics eliminate the possibility of human error. Production has demonstrated that deviation is less than .0077. This extreme accuracy is important to you. Your production line runs more smoothly and the rejection rate drops. No other supplier can claim this high degree of independently certified manufacturing accuracy.



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**PITTSBURGH 30, PA.**

West Coast — 4747 E. 49th St., Los Angeles, Calif.

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# MPM

(including finish)

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## METAL PRODUCTS MANUFACTURING

FROM RAW METAL TO FINISHED PRODUCT

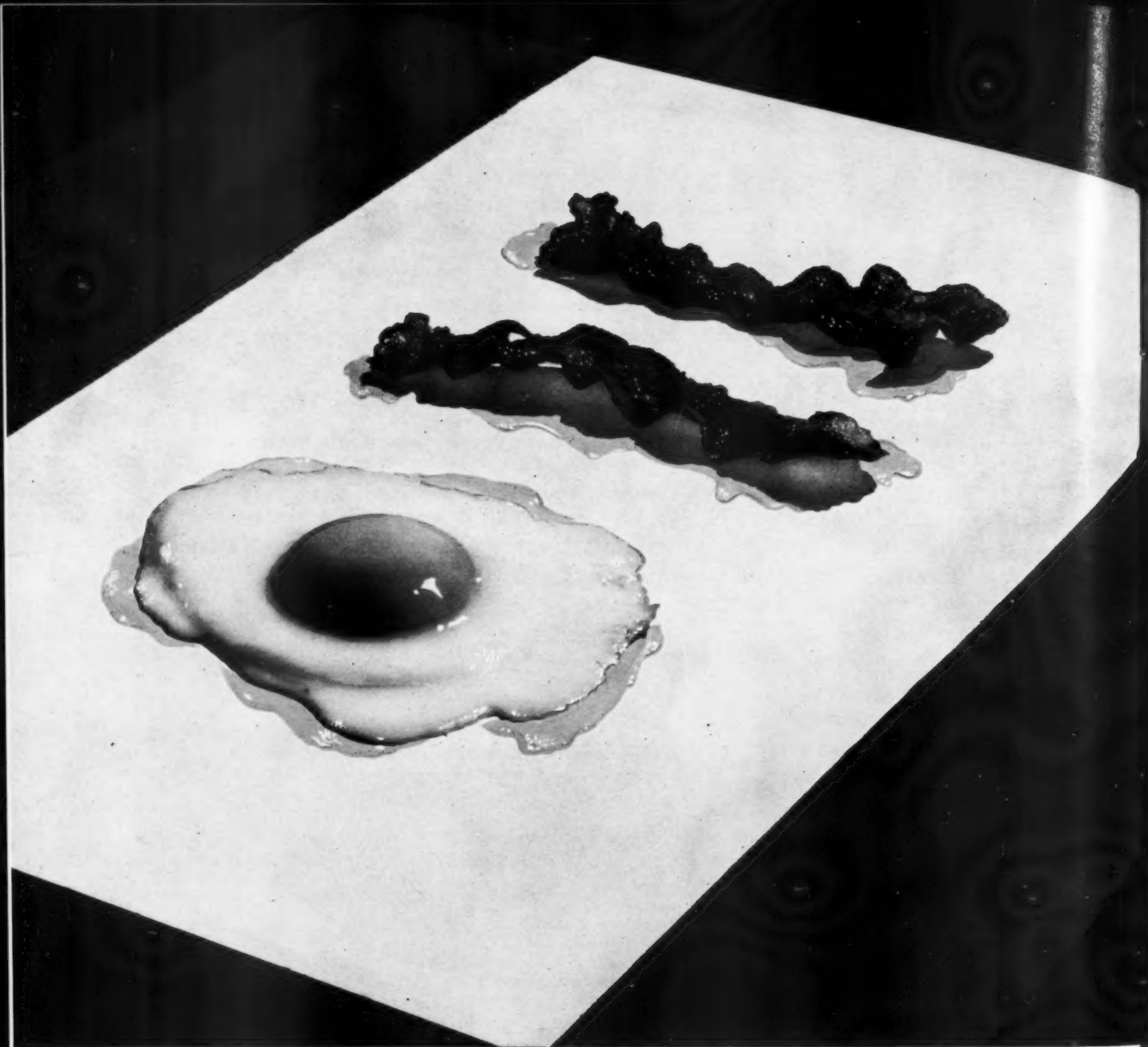
A trade publication devoted to the interests of the metal products manufacturing industry with special editorial attention to home appliances. The editorial scope covers design, engineering, market and statistical information and technical and practical information on plant facilities and all phases of manufacturing "from raw metal to finished product." Free controlled circulation to top management, purchasing, engineering and key plant management and supervision in metal product manufacturing plants. To others, subscription price is \$8.00 per year, domestic. To all other countries \$10.00 per year (U.S. funds). Single copies, \$1.00.

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## Hot grease can't cook this finish

Of course you wouldn't expect your breakfast to be prepared on a finish used for metal products.

But in a test for grease resistance involving one-to-one oleic and cottonseed oil a Glidden finish remained unaffected in gloss, color, adhesion or hardness—even after three days contact at 80°F.

Tests like this are common at Glidden Laboratories for determining abrasion, impact, humidity, heat, cold, corrosion as well as grease resistance of paint products. That's why Glidden technologists can make a positive recommendation of a finish for any unusual conditions which your product or products may be subjected to.

Your Glidden salesman is prepared to give you full information on the best Glidden finishing system to meet your particular requirements.



### FINISHES FOR EVERY PRODUCT

The Glidden Company  
INDUSTRIAL PAINT DIVISION  
900 Union Commerce Building • Cleveland 14, Ohio  
In Canada: The Glidden Company, Ltd., Toronto, Ontario

No matter what your product, process or problem, Glidden Finishes plus Glidden Technical Service can provide the answer.

# GENERAL EXTRUSIONS

... PUTS  
INSTANT  
INSTALLATION



## In Quiet Kool's **KOOL-MOUNT\*** AIR CONDITIONERS by EMERSON RADIO

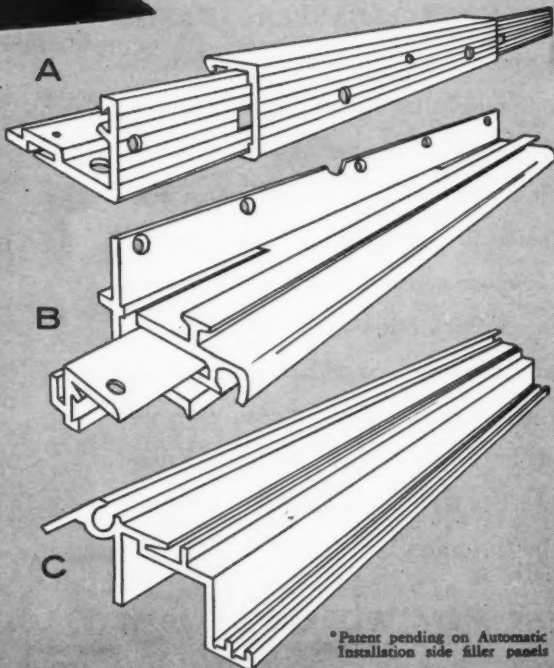
The hit of the new room air conditioning season is the new QUIET KOOL by Emerson Radio—the first air conditioner designed for true instant installation. BUILT-IN sliding aluminum filler panels permit the unit to be put in operation almost as soon as it is placed on a window sill. The free-sliding frames for these Kool-Mount\* panels are aluminum extrusions by GENERAL EXTRUSIONS, INC.

The G.E.I. sections not only slide freely and fit tightly, but they also enhance the beauty of this versatile air conditioner. What's more, this manufacturer's requirements for durability and economy have been met by G.E.I.'s uniform quality and complete conformance to critical specifications.

Once again G.E.I. has pioneered a new application for extruded aluminum. If you have a problem which might be solved by G.E.I.'s specialists in design and production, why not take it to a G.E.I. representative? G.E.I. guarantees speedy and high quality anodizing and fabrication and can give you complete and unsurpassed service in all phases of aluminum processing.

**GENERAL EXTRUSIONS, INC.**  
4040 LAKE PARK ROAD • YOUNGSTOWN, OHIO  
SALES OFFICES AT ST. LOUIS, PITTSBURGH, CHATTANOOGA,  
CINCINNATI AND CLEVELAND

CONSULT YOUR CLASSIFIED PHONE BOOK UNDER  
ALUMINUM PRODUCTS



\*Patent pending on Automatic  
Installation side filler panels

# IF YOU MAKE

## ALUMINUM FABRICATED OR DIE CAST PARTS

# YOU NEED

## MACCO ALUMINUM CLEANER 19 JMA

### CHEMICALLY NEW APPROACH GIVES YOU A BETTER CLEANING JOB AT LOWER COST

Whether you are finishing fabricated sheet aluminum parts or die castings you'll get the chemically clean surface you need for the most effective subsequent operations when you use MACCO ALUMINUM CLEANER 19 JMA. This is not just another cleaner, but a specially developed compound that works like nothing else ever has. There are a number of reasons why—will not attack the metal . . . effective on a great variety of soils . . . eliminates streaking or water spotting . . . more economical to use . . . rinses freely, less contamination of rinse water . . . low pH, safer to use . . . works as well in tanks as in pressure washers. Your Macco man will be pleased to give you all the facts about MACCO ALUMINUM CLEANER 19 JMA. Then you be the judge!



BOATS, REFLECTORS, EXHAUST FAN HOUSINGS, ROOF SHINGLES, AIRCRAFT STRUCTURAL PARTS, APPLIANCE NAMEPLATES, VACUUM CLEANER HOUSINGS — MACCO ALUMINUM CLEANER 19 JMA will do an outstanding job on all of them, and more besides.

**THE METALWORKING INDUSTRY LOOKS TO MACCO FOR LEADERSHIP**



**MACCO**  
PRODUCTS COMPANY

FOR THE METALWORKING TRADE SINCE 1931

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## BURNING WITH AMBITION

*For fifty years, Pemco has retained its enthusiasm for the unexplored. Today, the flame of research burns with even greater intensity. Pemco Research continues to lead the way toward further developments and improvements in low temperature and one-coat enamels to help you maintain highest product quality at lowest manufacturing cost.*

FIFTY YEARS OF RESEARCH AND A FLAME

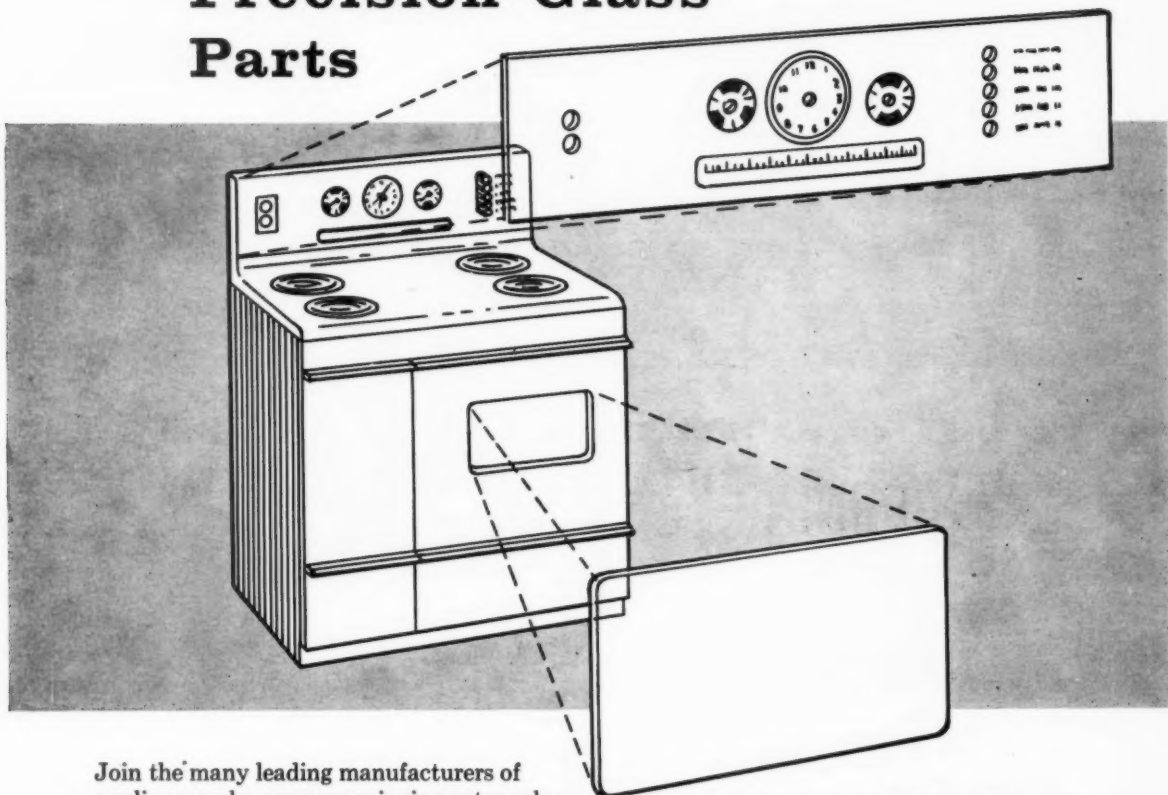
**PEMCO** CORPORATION

BALTIMORE 24, MARYLAND

HIGH QUALITY PORCELAIN ENAMEL FRITS AND COLORING OXIDES

# MARSCO

for the finest in  
Precision Glass  
Parts



Join the many leading manufacturers of appliances who are now enjoying extra sales from the appeal and prestige contributed thru the luster of glass. Glass will enhance the beauty and broaden the acceptance of your product. It can be hardened, heat-treated or tempered to survive consumer usage unscathed.

Let Marsco's craftsmen engineering team impart to your product all the advantages of glass.

Here are some of the applications for Marsco heat-treated, tempered and hardened glass parts:

- |  |                                    |
|--|------------------------------------|
| * CLOCK AND TIMER CRYSTALS                       | * INSTRUMENTS                      |
| * RADAR EQUIPMENT                                | * MEDICAL EQUIPMENT                |
| * AIRCRAFT ACCESSORIES                           | * LAMP GLASS                       |
| * OVEN DOOR WINDOWS<br>for both Conventional and | * SHELVING                         |
| * Built-In Ranges                                | * ROTISSERIES                      |
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| * PHOTOGRAPHIC EQUIPMENT                         | * DRYERS                           |
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| * TELEVISION EQUIPMENT                           |                                    |

Special Shapes for: Instruments, Gauges, Household and Industrial Appliances.

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*Marsco*

MARSCO MFG. CO., 2901 S. HALSTED ST., CHICAGO 8, ILL.



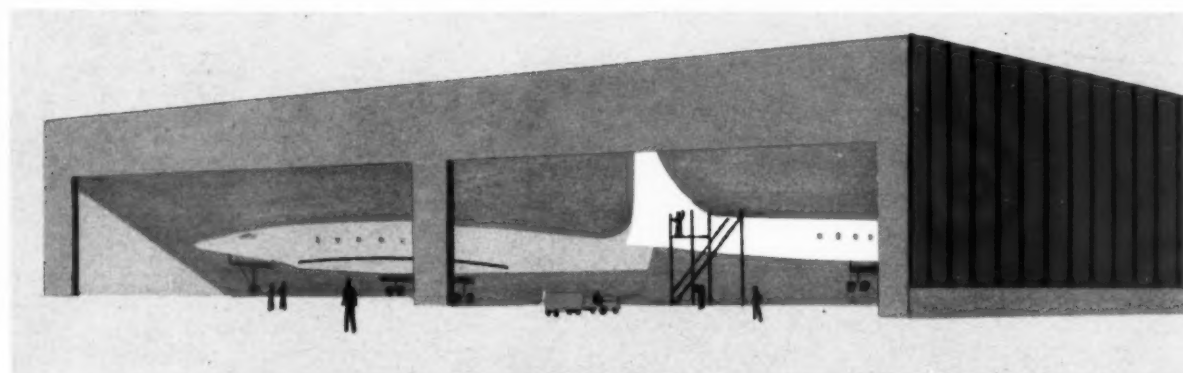
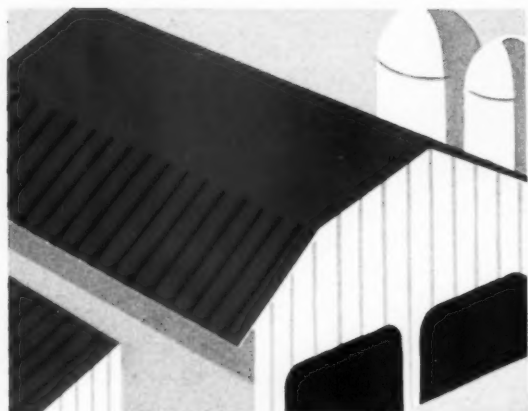




# FERRO

has  
AL  
PO  
E





## PORCELAIN ENAMEL ADDS SALES APPEAL TO ALUMINUM

### Ferro has the products and "know-how"

Color sells! How often you've heard that. And it's truer than ever in this era of highly competitive marketing.

When you combine the advantages of ALUMINUM with the brilliant, non-fading, lasting color of PORCELAIN ENAMEL, you take a long step toward getting the "buyer's vote." Your product is distinctive, obviously "quality"—which interests wholesalers and dealers, and *their* customers, too!

Also, the cost will surprise you . . . pleasantly! This applies to the equipment needed, as well as your production costs. Ferro, as world leader in porcelain enamel, has done much to make the process completely practical and economical. Our staff of engineers, builders, process and color specialists, will be happy to work with you.



**FERRO CORPORATION**

4150 EAST 56 STREET • CLEVELAND 5, OHIO

PLANTS IN CLEVELAND, NASHVILLE, LOS ANGELES AND IN ELEVEN FOREIGN COUNTRIES



LIFE-RITE BY ALLIANCE WARE, INC.

NEW "BLACKBOARD"...  
MADE OF LIFETIME  
LEAD-BEARING  
PORCELAIN ENAMEL  
ON STEEL

GUARANTEED  
TO LAST  
20 YEARS



Easy to chalk . . . easy to erase . . . and available in a range of lifetime colors . . . that's the story behind this new, no-glare, metallic chalkboard currently brightening classrooms and conference rooms all over the country. Made of a 28 gage steel sheet coated with conventional porcelain enamel on both sides . . . and with a lead-bearing low-temperature cover coat (firing under 1200°F.) on the blackboard side . . . it forecasts a host of durable porcelain enameled products formerly impossible because of the warping and distortion inherent in the high temperature process.

With beautiful matte finishes in an endless spectrum of color, low-firing, leaded porcelain enamel opens a vast potential to the designer of products in and around the home. It may well be that leaded porcelain enamel can be profitably put to work for you. For information, write to: Lead Industries Association, 292 Madison Avenue, New York 17, New York.

2849

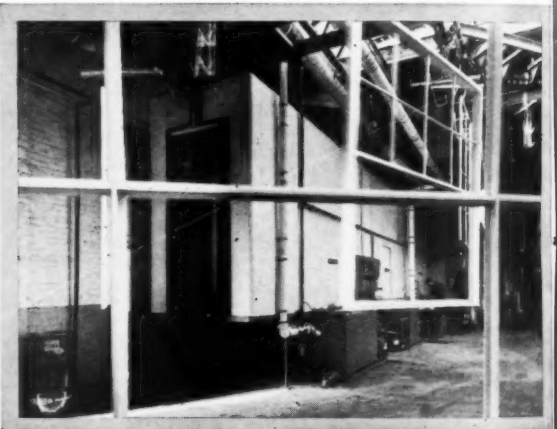
LOOK AHEAD WITH **LEAD**

# FIRST SUCCESSFUL PRE-P WINDOWS MADE POSSIBLE BY

General Bronze now producing  
Alodine-treated, painted Aluminum  
windows for National Homes



Advanced flash welding techniques give General Bronze products greater weld strength and water-tightness.



An Alwintite picture window frames Alodine 1200S spray-booth equipment at General Bronze Corporation's Alwintite Division, as conveyor-hung windows are Alodized.



Finished windows are loaded into freight car for shipment to National Homes from plant railroad siding. General Bronze supplies all painted aluminum windows for the home manufacturer's "Viking" line.



General Bronze executives examine samples of Alodized aluminum extrusion sections. Left to right: Works Manager, G. M. Keulemans; General Superintendent, George Pruessner; and Purchasing Agent, Harold Heitzmann.

When  
"first"  
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PAST

Genera  
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creatin  
home b

Amche

# PAINTED ALUMINUM BY AMCHEM ALODINE!

(NOTE: Architects, developers and home manufacturers are calling development of painted aluminum windows "the major improvement that's been made since the inception of that type of window.")

When General Bronze decided to create this new "first"—a baked enamel finish on aluminum windows—for the world's largest home manufacturer, National Homes, it called on Amchem to come up with the proper treatment and coating prior to painting and baking. The answer—a fully conveyORIZED and automated Alodine 1200S pre-paint spray system. The results, as the General Bronze production team sees them, "the extra security and safeguard of a superior, durable finish, no rejects or paint failure, and not a single customer complaint."

## PAST PERFORMANCE PROVED

General Bronze had created an industry standard for excellence when it pioneered the use of Amchem's Aluminum Etchant to produce a special luster-dip effect where aluminum finishes are specified in its line. The constant uniformity and ease of control obtained with this process influenced General Bronze's decision to use the extra safe-guarding qualities of Alodine in creating this major new home building development.



Alodized and painted aluminum windows by General Bronze are featured in 1960 National Homes line. Other aluminum portions of National Home models are Alodine-treated for beauty, protection and long life.



# ALODINE

Amchem and Alodine are registered trademarks of AMCHEM PRODUCTS, INC. (Formerly American Chemical Paint Co.)  
AMBLER, PA. • Detroit, Mich. • St. Joseph, Mo. • Niles, Calif. • Windsor, Ont.

Amchem's special technical advisory service was put into action to help expedite the installation of General Bronze's highly efficient pre-paint finishing system. Amchem engineers collaborated with the equipment builder to provide a virtually custom-designed system. Development Laboratory testing and pilot plant processing continue at Amchem headquarters in the search for even more efficient chemicals for a higher quality and product.

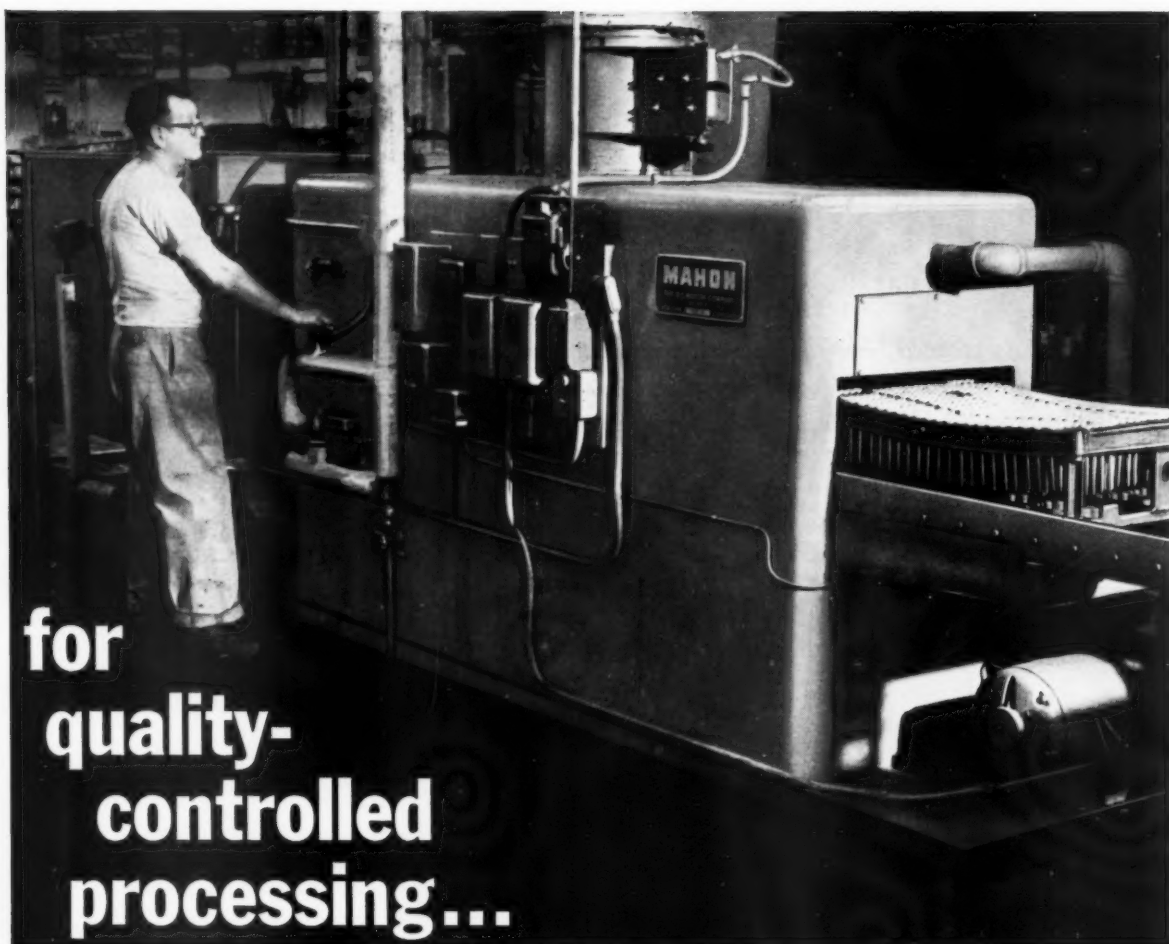
## FULL PRODUCTION CYCLE PLANNED

General Bronze plans to use its Alodizing operation 24-hours a day to provide trouble-free operation during peak periods. General Bronze is confident that the Amchem products it uses will enable this company to maintain consistently uniform results in line with its highest standards of design and workmanship. With exciting potentialities in store for painted aluminum windows, General Bronze now considers the possibility of extending Alodine usage to other products—painted aluminum storm windows and sliding doors.

Do you have an aluminum product? A pre-painting problem? Then you have a use for Alodine! Call or write for further details!

Send for Booklet  
1424A describing  
uses of Alodine,  
the standard  
pre-paint and  
protective treatment  
for aluminum.

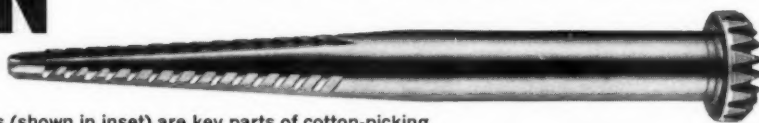




**for  
quality-  
controlled  
processing...**

**industrial  
by equipment  
MAHON**

'cotton-picking' spindles thoroughly cleaned  
500 at a time for International Harvester



Hardened, chromium-plated, barbed spindles (shown in inset) are key parts of cotton-picking machines made by International Harvester Company. These spindles are the metal 'fingers' that actually field-pick the cotton—several million are produced each year at IH's Memphis, Tenn., Works. A critical step in processing these parts is thorough cleaning before heat treating and plating. Removal of oil, grease, and foreign matter from the spindle surfaces is essential to insure uniform hardness . . . and long product life.

For "quality-controlled processing" the spindles are washed and dried in Mahon equipment. This special machine, developed for International Harvester from Mahon Industrial Equipment Division 'almost-standard' designs, means production efficiency . . . product quality . . . faster delivery and reasonable cost. Over the years Mahon equipment is your best investment. Call in a Mahon industrial engineer; let him prove why.

In cleaning a 500-piece-load of cotton-picking spindles, the two-stage Mahon machine washes the parts with detergent in hot water (at 180°F); then hot-air dries the load at (250°F). Automatic cycle time is about 15 minutes per load.

YOUR BIGGEST VALUE IS IN MAHON'S PLANNING & ENGINEERING EXPERIENCE

**THE R. C. MAHON COMPANY**

DETROIT 34, MICHIGAN

MANUFACTURING PLANTS—Detroit, Michigan and Torrance, California

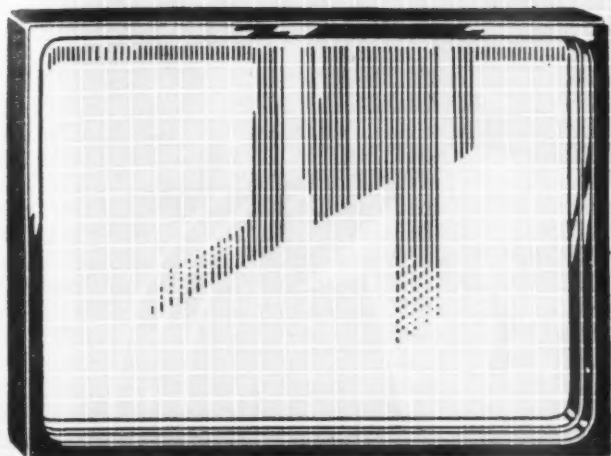
SALES-ENGINEERING OFFICES—Detroit, New York,  
Chicago, San Francisco and Torrance.

**M A H O N**





... one of the long line  
of PERMA-VIEW® users.



Enamel & Heating Products Limited, manufacturers of the Fawcett range, is one of the 85 leading range manufacturers using PERMA-VIEW oven door windows.

As a practical, economical and effective component, PERMA-VIEW can be your best sales feature. Be sure you take advantage of this sales feature in your new models — either free-standing or built-in.

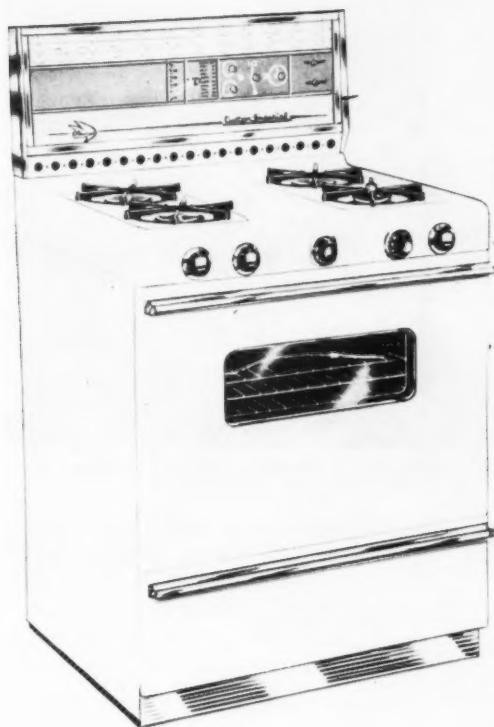
A. M. Latts, sales manager, Enamel & Heating Products Limited, recently wrote:

*"It is with great pleasure that I take time to throw a few bouquets in the direction of Mills Products, Inc."*

*"For two years Fawcett ranges have been equipped with PERMA-VIEW windows; for two years Fawcett range sales have steadily increased. Naturally, one component has not been able to accomplish all this. However, we feel that the PERMA-VIEW non-fog window, coupled with many other features, has helped to move our products from warehouse, to dealer, to consumer."*

*"In closing, let me say that quality, design, ease of handling and 'on time' delivery keep Fawcett a happy and satisfied customer of Mills Products, Inc."*

Phone or write us for complete details on the ease and economy of adding this sales feature to your new range.

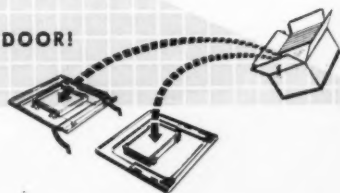


out of our CARTON . . .  
into your DOOR!



**MILLS PRODUCTS  
INCORPORATED**

1015 WEST MAPLE ROAD, WALLED LAKE, MICHIGAN • Phone MArket 4-1591



# **CORVEL®** fusion bond finish cuts costs of welded wire products

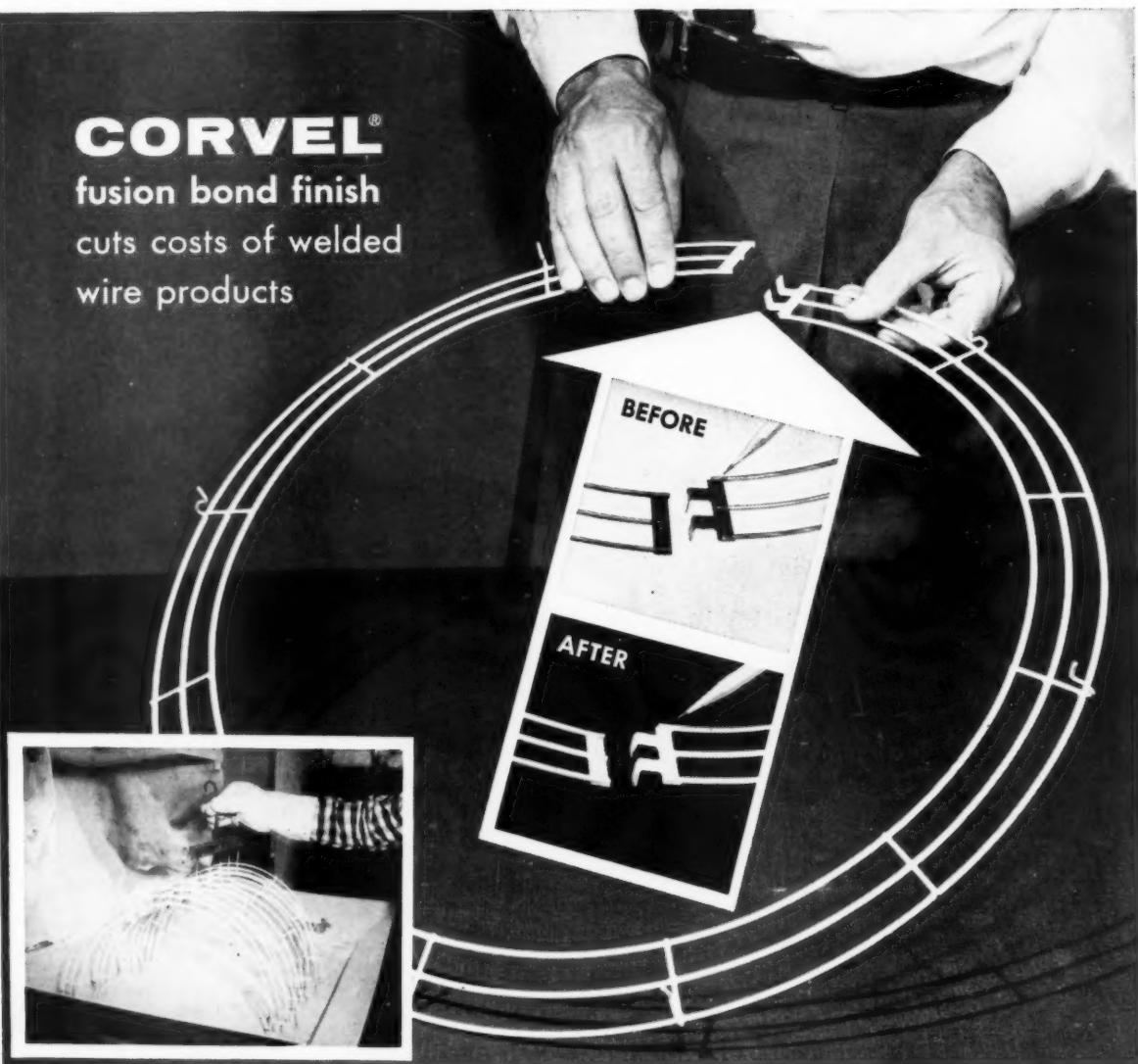


Photo courtesy Bauer Brothers, Springfield, Ohio

Before and after photos of this washer clothes guard dramatically demonstrate the savings possible with CORVEL fusion bond vinyl finishes on welded wire products.

Sharp edges and rough weld flash on the bare wire were completely covered in the WHIRLCLAD\* Coating System†. Grinding and other deburring operations were eliminated.

Economical bright basic wire, excellent for CORVEL finishes, saved about ¾¢ per pound over premium priced, extra-clean, extra-bright wire necessary for plating processes.

Another savings—only a single dip was needed to get a smooth, thick vinyl coating in a matter of seconds. Coating is uniform, with no thick and thin spots, and completely free of sags, drips and bridging. Thus, a minimum amount of mate-

rial is required. The vinyl coated clothes guard is highly resistant to detergents and corrosion.

CORVEL finishes are specially processed dry powders for use in the WHIRLCLAD Coating System and are available in cellulose, vinyls, epoxies, nylon, polyethylene and chlorinated polyethers.

The WHIRLCLAD Division of The Polymer Corporation will assist you in the application of CORVEL Coatings to your products. Further design literature can be supplied.

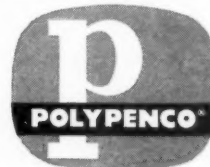
Engineering assistance is available to set up the WHIRLCLAD System in your plant according to your specific requirements.

Facilities for sample development and custom coating service are also available.

\*Trademark of The Polymer Corporation

Write to:

**The Polymer Corporation**  
**Whirlclad Division**  
Reading, Pa.



†The WHIRLCLAD Coating System includes basic procedures and apparatus developed and patented in Germany by Knapsack-Griesheim A. G. of Frankfurt, Germany. The WHIRLCLAD Coating System is protected by various apparatus and process patents in the United States and foreign countries, and numerous patent applications are pending. Exclusive patent and licensing rights in the United States and Canada are owned by Polymer Processes, Inc., a subsidiary of The Polymer Corporation.

# MPM

## editor's mail

### Newcomer

Gentlemen: Please send me one of the *Conversion Factor Wall Charts* advertised in the March edition of your magazine. I am just entering the engineering field from college and have found METAL PRODUCTS MANUFACTURING to be one of the most interesting and informative magazines I have read.

E. O. Barkley, Jr.  
439 Huguelet Dr., Lexington, Ky.

### In the field of appliances

Gentlemen: Recently I became acquainted with your magazine and, since we furnish a substantial amount of our services in the appliance field, I would like very much to be added to your controlled circulation list.

We have regularly received \_\_\_\_\_ magazine for several years but, after seeing a few issues of your publication, we feel convinced (as suggested to me by Mr. \_\_\_\_\_) that MPM does a better job in this field.

Thanks for your consideration.

George L. Congdon, President  
Norland Associates, Inc.  
Fort Atkinson, Wis.

### For foreign consumption

Gentlemen: We would appreciate receiving not less than eight reprints of the article on Page 39, "Insulating refrigerators with urethane foam," April, 1960, MPM.

These are for mailing to our licensees outside the United States. We certainly hope they are available.

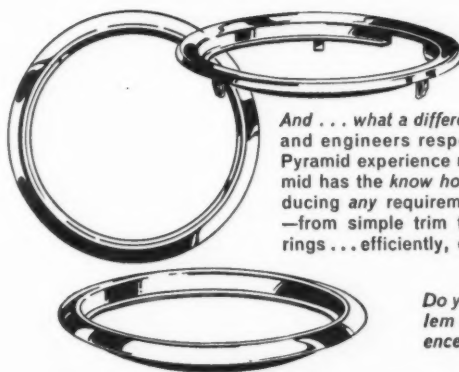
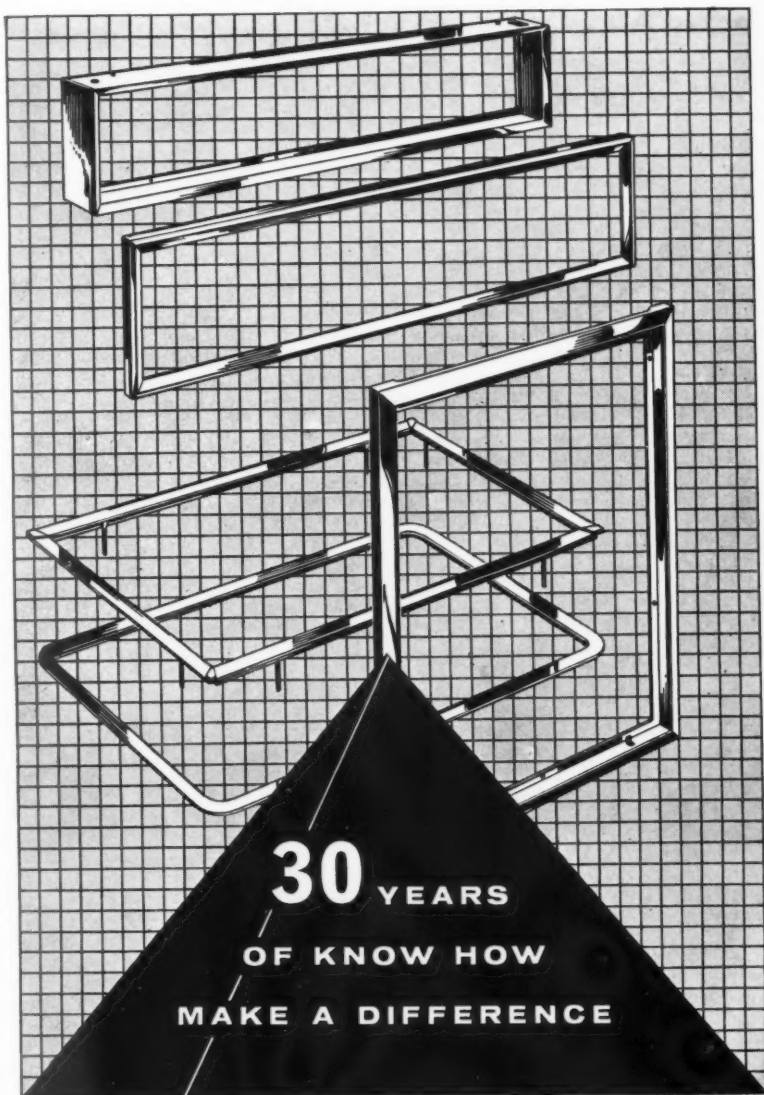
Wray V. McKenzie  
Appliance Service Manager  
Borg-Warner International Corp.  
Chicago, Ill.

### The automatic ice maker

Gentlemen: V. C. Rice, vice president of manufacturing and engineering, and the other Norge executives feel you are to be complimented for featuring automatic ice making equipment in your "The Finish Line" editorial in the March issue of METAL PRODUCTS MANUFACTURING.

You have certainly highlighted one of the great developments which could stimulate more and more sales in the refrigerator industry.

We just wanted you to know that we  
to Page 21 →



And . . . what a difference! Leading designers and engineers respect the difference that Pyramid experience makes. They know Pyramid has the *know how* for planning and producing any requirement in metal mouldings—from simple trim to complex frames and rings . . . efficiently, economically.

Do you have a moulding problem? Let us put this experience to work for you . . . today!

## Pyramid Mouldings Inc.

5365 WEST ARMSTRONG AVE., CHICAGO 46, ILL.—BRONXVILLE, NEW YORK  
WESTERN MOULDINGS INC., 1111 EAST 8TH STREET, UPLAND, CALIFORNIA



# **Metalwash<sup>®</sup>** **AUTOMATIC** SPRAY PICKLING MACHINES

CLEAN AND PICKLE METAL BETTER, FASTER, ECONOMICALLY!

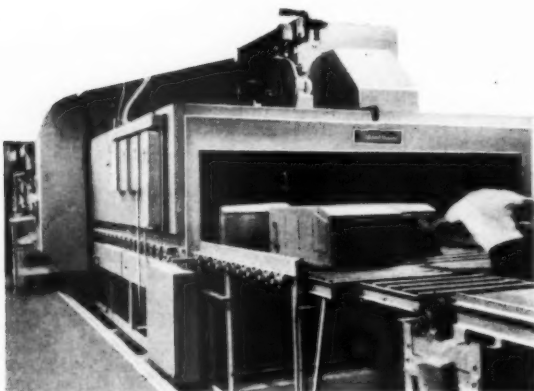
Continuous spray pickling, pioneered by METALWASH and proved in many of America's leading manufacturing plants, is an **essential** production method for economical and superior preparation of metal for porcelain enameling.

**METALWASH** conveyorized spray pickling does the job automatically from start to finish—scouring the ware clean of dirt and oxide scale, and performing each step of the pickling process by action of high-

pressure sprays which blast the work from every angle.

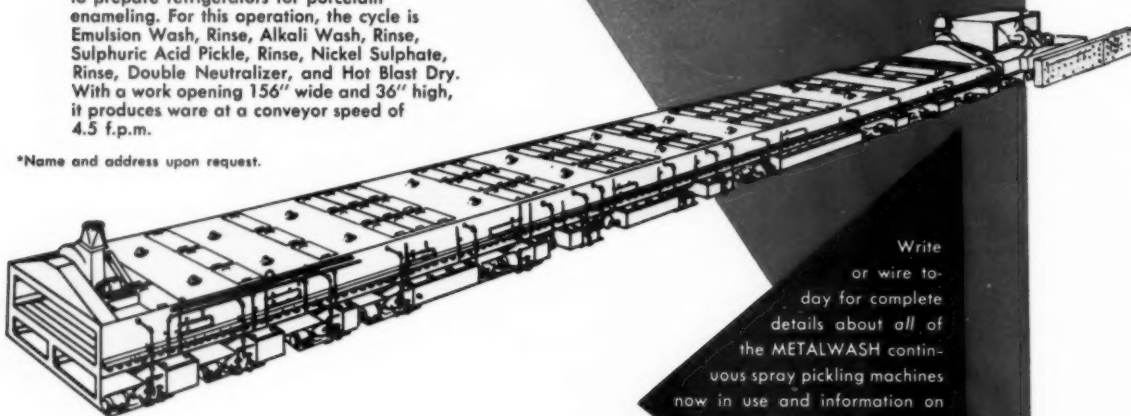
**METALWASH** spray pickling does away with the old dip-tank method. Its **automatic** action reduces manpower needs, speeds the job, protects workmen from acids, alkalis and fumes and reduces rejects to a minimum.

The resulting uniformly-superior surface for application of enamel is obtainable by no other process.



This driven-roller type METALWASH spray pickling machine is used by one of America's largest appliance manufacturers\* to prepare refrigerators for porcelain enameling. For this operation, the cycle is Emulsion Wash, Rinse, Alkali Wash, Rinse, Sulphuric Acid Pickle, Rinse, Nickel Sulphate, Rinse, Double Neutralizer, and Hot Blast Dry. With a work opening 156" wide and 36" high, it produces ware at a conveyor speed of 4.5 f.p.m.

\*Name and address upon request.



Largest in the world, the 208-ft. METALWASH spray pickling machine shown below was engineered and built for specific application. METALWASH engineers design and build spray picklers in all sizes, of course, and their experience is available to you for production of a machine of any size that will meet your requirements.

Write or wire today for complete details about all of the METALWASH continuous spray pickling machines now in use and information on how METALWASH can help you to make a better product at lower cost.

 **Metalwash<sup>®</sup>** MACHINERY CORPORATION  
Established 1926

900 North Avenue Elizabeth 4 New Jersey

Washers Dryers Phosphatizers Bake Ovens Degreasers



**Another new development using**

## **B.F. Goodrich Chemical** raw materials



*Complete acid etching machine of rigid Geon was developed by Industrial Plastic Fabricators, Inc., Norwood, Massachusetts. It is used by Corning Electronic Components, Corning Glass Works, Bradford, Pennsylvania, to produce Fotoform and FOTOCERAM® products like the circuit board shown. B.F. Goodrich Chemical Company supplies the rigid Geon vinyl.*

### **Machine of rigid Geon produces low cost precision etching on glass**

"Chemical machining" is the accurate term for the high precision etching on glass done by this new machine. Square-cornered, submicroscopic holes can be produced with small tolerances and close center-to-center distances. Or a precise pattern can be created in glass, whether it involves holes, cut-outs, or channels. Screens with mesh as fine as 560,000 holes per square inch have been produced.

The machine is made of shapes, sheets and rods made of Geon rigid

vinyl. Geon is unaffected by the acids that do the etching job. It provides the durability and impact strength needed for fabrication. And it is as easy to handle as any material used for manufacturing.

Here's another example of the way Geon vinyl can open new markets or improve old applications. For more facts, write Department GD-4, B.F. Goodrich Chemical Company, 3135 Euclid Avenue, Cleveland 15, Ohio. Cable address: Goodchemco. In Canada: Kitchener, Ontario.



**B.F. Goodrich Chemical Company**  
a division of The B.F. Goodrich Company



GEON vinyls • HYCAR rubber and latex • GOOD-RITE chemicals and plasticizers

# LA FRANCE



**DIE CAST  
NAME  
PLATES  
& TRIM**

**SAY MORE  
SELL MORE**



● Everything to be said about quality, about reputation, about your company and your product is said best with La France die cast name plates and decorative trim. There can be no error. These three-dimensional name plates with cut-out letters speak out on the showroom floor. Here is positive product identification—manufactured by La France, the leading specialist in the field! Why not have an original design submitted with a quotation for your approval?

**FREE** Write for sample name plate and technical bulletin.

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**PRECISION CASTING CO.**  
... for the name in front!

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Chicago 22, Ill. • Los Angeles 23, Calif.

### Editor's mail

→ from Page 17

saw this editorial and appreciate your continuing efforts in behalf of the appliance industry.

A. J. Tobin  
Norge, Division of Borg-Warner Corp.  
Chicago, Ill.

This letter was read by the MPM Editor while on vacation in sunny Florida. The Lauderdale Ruttger, new "Resort-O-Tell" on the Galt Ocean Mile at Ft. Lauderdale, offers every convenience possible in the newest of resort hotels. Nevertheless, it is still necessary to fight with plastic ice trays to get ice from the convenient apartment refrigerator.

### Reference material

Gentlemen: Would you still have any reprints of the article "The role of thermostats in appliance design" which appeared in your June, 1959 issue? If so, I would appreciate as many as fifteen copies for use as reference material in our courses in household equipment.

If there is any charge for these reprints, please forward the bill to me. Thank you.

Ruth M. Beard  
Associate Professor, Household Equipment  
The Ohio State University  
Columbus, Ohio

### Our error

In the article "Avoncraft builds 'package' porcelain enameled buildings," April, 1960 issue of MPM, Page 45, we erringly described two ball mills as being of 6000-lb. capacity. The caption should have described them as 600-lb. capacity mills.

The Editors

### Drives a point home

Gentlemen: Can you send us ten (10) copies of the editorial on Page 16 of your April, 1960 METAL PRODUCTS MANUFACTURING issue.

This is a well-written article and drives a point splendidly home. I am sure that a number of our people would appreciate a single sheet on this. Thank you for this service.

G. L. Lemich  
Institutional Industries, Inc.  
Cincinnati, Ohio

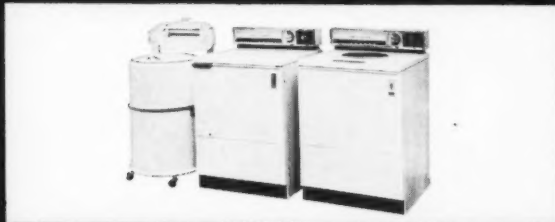
### Automated aluminum line

Gentlemen: Your December, 1958 issue has an article entitled "New enameling plant features automated aluminum line."

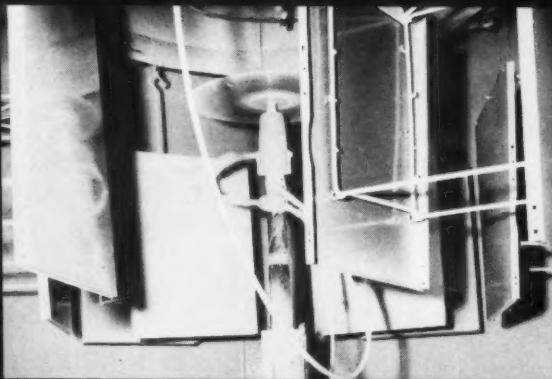
I wonder if you would be kind enough to send us two sets of tear sheets of the above article.

Henry Margulies  
Gotham Chalkboard and Trim Co., Inc.  
New Rochelle, N. Y.

## KELVINATOR Washers and Dryers



Get their High Quality Finish with



## RANSBURG NO. 2 PROCESS

Kelvinator Division of American Motors switched from hand spray to RANSBURG No. 2 PROCESS Electro-Spray to meet increased production schedules . . . improve the quality of the finish . . . and lower finishing costs.

### SAVINGS EXCEEDED EXPECTATIONS

Demonstration tests in the Ransburg labs indicated substantial savings in finishing costs, but in actual production, SAVINGS ARE EVEN GREATER than estimated. That's why Kelvinator is now considering RANSBURG Electrostatic Spray Painting for other products of their "white goods" line: Refrigerators . . . Home Freezers . . . Ice Cream Cabinets . . . Electric Ranges, as well as some components.

### NO REASON WHY YOU CAN'T DO IT, TOO!

Want to know how Ransburg No. 2 Process can improve the quality of YOUR painted products, and at the same time, cut YOUR paint and labor costs? Write for our No. 2 Process brochure. Or, if your production doesn't justify automatic painting, let us tell you about the new No. 2 Process Electrostatic Hand Gun which can be used in either conveyorized, or non-conveyorized painting.



**RANSBURG**  
**Electro-Coating Corp.**

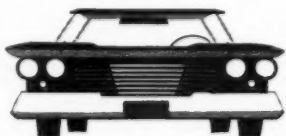
Box-23122, Indianapolis 23, Indiana



*Better products through better methods and steels*



(or how zinc-coated steel cut 5 steps from auto lamp housing fabrication). When automotive head and tail lamp housings were drawn from cold rolled sheet steel and then zinc-plated or painted, as many as five or six handling and cleaning steps were required to make them corrosion-resistant. Now, fabricated from Weirkote continuous-process zinc-coated steel, the housings go directly from the press to the assembly line. Further processing is unnecessary because Weirkote can be worked to the limits of the steel itself without chipping or flaking its corrosion-resistant zinc surface. It's this superiority that caused the automobile industry to increase its consumption of zinc-coated steel more than 700% in five years; to use it in such varied applications as mufflers, window channels and the understructures of unitized bodies; to take advantage of developments such as differentially zinc-coated steel that can be welded at top production-line speeds. A major supplier is Weirton Steel Company—producer of Weirkote continuous-process zinc-coated steel and many other fine steels that improve products, methods and profits throughout industry.



**WEIRTON STEEL**

*Weirton, West Virginia*



*Weirton Steel is a division of* **NATIONAL STEEL CORPORATION**

*Weirkote will also be available in 1961 from National's Midwest Steel Division, Portage, Indiana.*



# THE MPM *spotlight*



Whirlpool Corporation's introduction of a new remote control air conditioner does away with the need to leave bed or chair to adjust controls to a comfortable setting when sudden changes in outside temperature occur. Placement of the thermostat inside the control panel rather than in the air conditioner means temperature is now controlled from where the user is situated rather than where the room cooler is installed. The remote control panel is finished in brushed chrome, and cabinets in both Custom and DeLuxe models are cloud gray in color.

## Vinegar with the honey

THE AMERICAN HOME LAUNDRY Manufacturers' Association met for its 1960 convention at The Diplomat, Hollywood-by-the-Sea, Fla. The theme of the meeting was "The Shape of the Sixties."

The weatherman supplied perfect Florida weather for the three-day session held April 27, 28 and 29. A fine beach on the Atlantic, an Olympic size pool, and a hotel-owned golf course offered the hard-working conventioners an opportunity for after-meeting recreation.

The convention opened with an officers' reception and dinner on Wednesday, April 27, and the formal business program started Thursday. Kelvinator's

well the control quality is carried on in the seven stages, a product must be properly installed, completely checked out, and the customer fully informed about its operation and maintenance before the total quality control job can be considered complete. . ."

Miller believes that quality control is a major business management function, offering a major contribution to the business' overall productivity and consequent profit building. "The saving in quality cost dollars are profit," he said.

Miller concluded by saying that the great majority of the costs for quality are spent by the manufacturing function, and the manager of manufacturing should, therefore, be a major partici-



Products, and Charles V. Gecan, Maytag. Controls were adequately covered by G. R. McNeil, Controls Co. of America, and H. E. Van Scoyk, Frigidaire. Finishes for appliances were discussed

### home laundry equipment men "take their hair down" at annual meeting

William L. Hullsiek was general chairman of the annual meeting. A. F. Boone, Youngstown Kitchens, served as chairman of the Associates Committee, which sponsored the entertainment and recreational events.

H. B. Miller, convention keynoter, said that the control of product quality (meaning the composite of characteristics determined by marketing and created by engineering and manufacturing) is essential to provide customer satisfaction.

"The control of this quality," he said, "is far more than we have historically known as 'inspection'." He stated that the quality of a product, a washing machine, for example, is the result of actions that take place in seven sequential stages of the industrial business practices.

1. Quality is influenced by merchants who evaluate the level of washing quality that customers want and for which they are willing to pay.
2. Quality is influenced to a major degree by engineering.
3. It is influenced by purchasing, which must choose and contract for parts and materials.
4. It is influenced by manufacturing engineering and its selection of jigs, tools, and processes which will finally affect quality throughout production.
5. Manufacturing supervision and shop operators have a major quality influence during parts making, sub-assembly and final assembly.
6. The job of mechanical inspection and functional tests is necessary to check the product's conformity to specification.
7. Shipping habits influence quality.

In addition to these seven points, Miller had this to say: "No matter how

part in setting the quarter-by-quarter objectives and goals to meet the company's targets in quality costs.

"Quality in the Sixties" was the theme of the Thursday morning program, kicked off by keynote speaker Miller, who is vice president — manufacturing services, General Electric Co.

#### OEM's meet suppliers

An interesting program was developed by pairing off one representative of a supplier company with one OEM representative. These "specialists" covered four important materials and components used in the manufacture of home laundry equipment. Included were steel, rubber, controls and finishes. Covering the subject of steel were James G. Wikoff, Armco Steel, and Virgil C. Rice, Norge; covering the subject of rubber were B. J. Ferkes, Firestone Industrial

by C. O. Hutchinson, Glidden, and Glenn A. Evans, Whirlpool.

As pointed out in the recent AHLMA Technical Conference held in Chicago (see page 43, May MPM), the buying public is demanding increased quality and dependability in all home laundry equipment and other appliances. This calls for much better liaison between OEM and the suppliers of materials, components, and services. In the session at The Diplomat, few holds were barred in pointing out the present weaknesses in the chain of communication between suppliers and appliance producers. Pierce Sperry, Sperry Rubber & Plastics, closed the session with a summary of the subject.

Ferkes noted that, in the foreseeable future, rubber from trees will no longer be necessary. He stressed the complexity of the rubber industry and formulations,

*Seated at speakers' table at Friday's session are: W. W. Grant, Westinghouse Electric Corp.; Parker Ericksen, Easy Laundry Appliances Div., The Murray Corp. of America; George Lamb, Association Council; and Sigurd Anderson, member of Federal Trade Commission.*





(Far left)—B.J. Ferkes, Firestone Industrial Products Co., and Charles V. Gecan, The Maytag Co.

EXCLUSIVE MPM PHOTOS

(Left) — George McNeil, Controls Co. of America, and H.E. Van Scoyk, Frigidaire Div., General Motors Corp.

and suggested that engineers be cautious in using yardsticks familiar to them for steel and other products in setting up engineering specifications.

For example, Ferkes said tensile strength will receive top consideration in design calculations, but with rubber, tensile strength is rarely so important. Usually by cutting down tensile strength, rubber's resistance to heat, flexing, oil, and certain types of abrasion may be greatly improved. The end use and the type of material must be considered in quality control.

#### Quality and cooperation

During the spirited discussion on controls between McNeil and Van Scoyk, the latter suggested that suppliers and product manufacturers cooperate from the outset in establishing sound test procedures, so that common objectives are satisfied. During the development of controls, he said, adequate test-

ing should be performed to determine that the control is satisfactory from the standpoint of performance, reliability, repeatability under all anticipated environmental conditions, durability which calls for adequate life testing, and handling and shipping tests. As a minimum, the supplier should duplicate all of the product manufacturer's tests.

McNeil pointed out that controls quality in the Sixties offers greater challenges than ever before. To meet the "unquenchable thirst" of new features, he said, laundry appliances are becoming more and more complex.

According to McNeil, the original specifications are sometimes at odds with the actual requirements, as well as the suppliers' ability to conform. Often, these specifications are far in excess of those needed to do the job, because of a desire to attain maximum safety factors and a normal tendency to over-design.

There seemed to be agreement that the only possible answer to the multiplicity of problems is closer liaison between the equipment manufacturer and the component supplier during the engineering stages, and close followup during production.

A brief discussion was conducted on the subject of quality versus price, in connection with components. A check with some of the suppliers indicates

that, while the appliance manufacturers are talking increased quality and requesting more complicated controls and devices, they are still just as strong in urging, on the part of purchasing, cost cuts irrespective of the end requirement for the component.

Glidden's Hutchinson reported on developments with acrylic coatings, both for prime coat and second coat application, and charted decided progress with respect to resistance to detergents, salt fog, humidity and abrasion.

In summarizing, the finishes expert said, "Management of manufacturers and suppliers together can produce a breakthrough in an improved finish with epoxy resins and acrylics and low temperature enamels. I believe there is a place in the future for both inorganic and organic finishes in appliances. Different parts of our appliances may lend themselves better to one type of finish, while other parts may favor another type. We said television would 'kill' radio. Today, with television sales booming, radios are sold in even greater numbers. Porcelain enamel can progress side by side with organic finishes such as the acrylics. Each must find its place, but both must progress. We would be less than satisfied with two major advances in each area by 1969."

With the Thursday convention session exploring the subject of quality in detail, the Friday morning session set its sights on the future, with the subject, "The Shape of the Sixties."

#### Soaring Sixties?

As a part of his annual report, AHLMA President Guenther Baumgart included four factors considered important to the future of the laundry appliance industry: (1) The need to learn more about the effect of a change in model price at retail on the volume of appliances sold to consumers; (2) the need to learn more about persuading consumers to want to buy the products; (3) the need to know a lot more about measuring the size of total markets in the long pull, and about forecasting the "twists and turns" of the short-range future; and (4) a recommendation that appliance

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Homer L. Travis, vice president — sales, Kelvinator Div., American Motors Corp., chairman of AHLMA.



At opposite side of speakers' table at Friday's session are: L. R. Boulware, General Electric Co.; Guenther Baumgart, AHLMA; Jack Sparks, Whirlpool Corp.; William Hullsiek, Kelvinator; and F. B. Gray, Hotpoint.





# can you expect laboratory results

*...in production enameling operations?*

It is a far cry from the perfect conditions obtained in a laboratory test of any frit to the conditions encountered in actual production enameling operations.

**That's why Ing-Rich Plant Tested Frit has considerably lowered reject percentages for Ing-Rich Frit Customers.**

You have to know that you cannot approach laboratory conditions in actual production enameling. That's why Ing-Rich topflight ceramic engineers work hand in hand with our trained technical experts in our own job enameling plant . . . offering you not just the result of exhaustive, laboratory test . . . but the final test . . . frits proven under actual production enameling conditions.

The combination of Ing-Rich practical "know how" and Ing-Rich "Plant Tested" Frits offer you a combination that will insure you better enameling results with proven cost economies.



*Pioneer Producer of  
LIFETIME  
Porcelain Enamel Products*

**INGRAM-RICHARDSON, INC.**

OFFICES, LABORATORY AND PLANT  
FRANKFORT, INDIANA



# NAAMM holds 22nd Annual Convention

architectural metal manufacturers approve new constitution and bylaws and elect new officers

AN MPM STAFF REPORT

THE NATIONAL ASSOCIATION of Architectural Metal Manufacturers held their 22nd Annual Convention at Boca Raton, Florida, May 1-7. The sunny weather helped to promote an atmosphere which seemed to convey the feeling that NAAMM is headed toward new and rejuvenated activity and expansion.

At the opening session, a newly-revised constitution and bylaws were approved by the association membership. Paul C. Crawford, retiring president, recommended appointing a committee to investigate the enlarging of the NAAMM staff. He feels the staff should be enlarged in order to carry out more of the important duties and thus relieve some of the individual members of the burden. He also recommended a review of the present dues structure.

It was also announced during the opening session that the 1961 convention would be held at the Plaza Hotel in New York City on April 9-15. The 1962 convention is going to be held in Bermuda.

## Guest speaker

The guest speakers at the NAAMM convention included the following: Raymond C. Ellis, Jr., Director of Small Business and Associations Div., National Safety Council, who spoke on "Architectural Metal Industry Safety

Report;" Henry Gichner, president, Gichner Iron Works, Inc., who spoke on "It Should Have Lasted Longer than You Think;" and Albert M. Cole, executive vice president, Reynolds Aluminum Service Corp. His subject was "Industry and Urban Renewal." Sidney Kulick, president, Aluminum Window Manufacturers Association and vice president, Michael Flynn Mfg. Co., informed the Curtain Wall Div. of some of AWMA's objectives and the fact that he feels AWMA and the Curtain Wall Div. of NAAMM can and should work more closely together. In addition, other speakers included T. L. Sedwick, vice president, Standard Accident Insurance Co., whose subject was "A Look at Bonding Company Practices;" Clark Sanford, credit manager, Machinery and Systems Div., Carrier Corp., who spoke on "Credit Practices in the Construction Industry;" and William B. Davenport, Thompson, Raymond, Mayer, Jenner & Bloomstein, whose subject was "The Insolvent Contractor."

## Metal curtain wall division

Jack Roehm, chairman of the Research and Development Committee, recommended that the division continue to retain Wayne Koppes as architectural consultant, continue work on the Metal Curtain Wall Manual, put extra effort on the development of better window stand-



Jack M. Roehm, vice president, Research & Development, Kawneer Co., newly-elected president of NAAMM.

ards in cooperation with AWMA, try to establish a standard for dynamic testing of metal curtain walls, fully support the efforts of the new ASTM subcommittee for curtain wall testing, and make plans for a program of actual field testing. He stated that buildings in different geographical locations should be instrumented to record actual wind loads on different parts of the wall. He feels that such a program should have joint sponsorship of such organizations as National Bureau of Standards, National Research Council, Canada, ASA and ASTM.

Koppes spoke on "Where Do We Go from Here?" He stated that there are three important areas in which the division can place effort, information, communications and public relations. He feels that most of the effort so far has

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William H. Withey, chairman, Market Development Committee, Metal Curtain Wall Div., NAAMM, and Armco Steel Corp.

EXCLUSIVE MPM PHOTOS

Ralph L. McKenzie, outgoing president, Metal Curtain Wall Division.

Sidney Kulick, president, Aluminum Window Manufacturers Association, and vice president, Michael Flynn Mfg. Co., Philadelphia, Pa.



## Vinegar

→ from Page 25

manufacturers borrow a leaf from the lawyers and quit knocking each other.

Appliance manufacturers who feel that there will be an automatic increase in domestic markets and an ever-increasing source of business from foreign countries in the sixties would do well to read the presentation by Hotpoint's Frank B. Gray.

Gray pointed out that the overseas market, in general, is larger and is growing more rapidly than the market in the U. S. The home laundry market itself, he said, grew approximately 300 percent in a five-year period. Counteracting factors include the buildup of nationalistic ambitions, increase in overseas manufacturing capacity, the need of many countries to export manufactured goods, and the fact that the U. S. is losing its traditional basic advantage of mass production.

Questioned Gray, "Should we give them (foreign competition) free access to the export markets and help them develop the additional strength with which to invade our domestic market, or should we meet them now in their export markets? Personally, I would rather meet them and keep them busy fighting for their export markets."

Gray was critical of the home laundry manufacturing industry in stating that the overseas markets have not been supplied with home laundry products which will suit *their* individual washing customs, needs, and habits. "Our present trend in design philosophy," he said, "is making our U. S. product increasingly less suitable for the overseas markets." (For example, 70 percent of the world lives in high voltage areas.)

Gray closed with this comment: "What our share of the world markets in the Sixties will be is largely dependent upon the manufacturers. If we can re-orient our thinking and approach, and take the initiative, there is every reason to believe that we will have a significant share of the world markets. If we don't change our approach, I would anticipate that not only will our share of the world markets decline, but that we will be fighting for our very existence right here at home."

Whirlpool's Jack Sparks, in discussing "Our Share of U. S. Markets in the Sixties," was openly critical of the industry's past predictions for future business. He also criticized the "poor selling job in the Fifties," and said that, unless the industry beats the predictions for its share of the market in the Sixties, it will be in trouble.

Sparks pointed out that automatic washers have been sold to only 50 percent of potential buyers, dryers to 17.8 percent, and combination washer-dryers to only 1.6 percent. By contrast, he said, both the range and refrigerator markets are more than 97 percent saturated.



EXCLUSIVE MPM PHOTOS

(From left) — Glenn Evans, Whirlpool Corp.; C. O. Hutchinson, The Glidden Co.; J. K. Wikoff, Armco Steel Corp.; and V. C. Rice, Norge Div., Borg-Warner Corp.

Traditionally, Sparks said, the appliance industry gets about two percent of the consumer disposable income. Based on this percentage, a conservative estimate of the expected share of laundry appliances for the next ten years adds up to 55 million units — roughly 60 percent of the available automatic washer market, less than 25 percent of the dryer market, and a "disappointing" 17 percent of the combination market.

The comparison was made with the consumer electronics field to show that home laundry products have not incorporated many exciting new developments, and that some of those that have been added were forced upon the industry by changes in fabrics and detergents.

"The only way the home laundry industry can exceed present predictions and outstrip competition from other fields," Sparks declared, "is by producing appliances that anticipate consumer demand and by developing a new marketing efficiency."

### Advertising in the Sixties

General Electric's L. R. Boulware presented "Basic Industrial Relations Problems in the Sixties — Beginning Now!" following which Sigurd Anderson, Federal Trade Commission, talked on a very pertinent subject, "Advertising Practices in the Sixties," and Parker Ericksen, Easy, projected the future in the home laundry appliance business under the title heading, "Laundry in the Appliance Business in the Soaring Sixties."

Anderson outlined many of the weaknesses of present day advertising, while at the same time voicing the opinion that it is one of the most important ingredients in America's recipe for industrial and commercial success. "I am of the opinion," he said, "that there is nothing wrong with advertising that sincere, conscientious and truthful advertising practices cannot cure."

Ericksen presented the results of two individual surveys on combination washer-dryers which, space permitting, would make interesting reading for each MPM appliance manufacturer reader. One survey was based on a questionnaire to the owners of Easy combos; the second survey revealed what appliance dealers' wives have to say after using combinations.

Said Ericksen, "As more and more of AHLMA's members *unleash their power . . . as all engineers truly contribute . . . as management men look to this sound growth product for the increased volume the sixties surely offer . . . and, too, as prices trend down to more realistic consumer prices . . . just that fast will combinations break through and climb to a position of one-half million units a year by '62 or '61 — an annual rate of 750,000 by '64 or '63 — and push up past one million a year within five years. Only indifference and lethargy could prevent it.*"

Kelvinator's Homer Travis closed Friday's session with a word of caution concerning factory and field inventories, which plagued the industry during the 1950's. "Two months' inventory should be our goal," he said.

Travis also reverted to the quality theme: "Quality in a product and quality in a retailer's service are apt to be among the first things sacrificed in a competitive cost-price squeeze. Yet quality is what the producers and sellers can least afford to sacrifice since it is the customer's chief reward for the money he pays."

"When the consumer fails to get the quality for which he thinks he has paid, he has the economic recourse of taking his business elsewhere. In the case of our own industry, this means buying other goods and services and not home laundry appliances," Travis said.

No date or place have been established as yet for next year's annual AHLMA meeting.

## Mechanized line for baking metal signs

**P**AIINT BAKING of outdoor metal signs, formerly a production bottleneck at Stout Sign Co., St. Louis, Mo., has succumbed to mechanization.

It has joined the parade of other semi-automatic processes through a "package" that includes some new ideas in air movement and temperature control. The new installation has eliminated slow batch baking procedures and considerable handling. A tremendous amount of floor space is being saved. According to the company, the problem of thorough curing of paints to prevent possible damage to silk screens from tackiness is no longer left to guesswork.

Mainly responsible for breaking the bottleneck is a new, 172-foot tunnel-type, conveyorized paint baking oven. The unit provides a capacity of 75,000 square feet of painted surface per hour — a surface capacity equal to drying about 430 auto bodies per hour, or better than seven a minute.

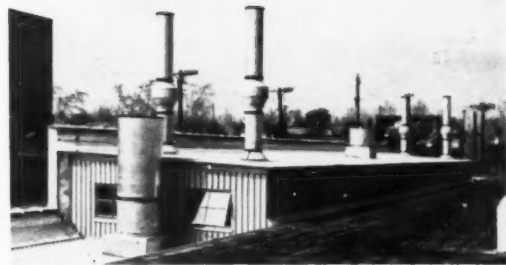
The oven is actually a two-in-one unit

with two conveyor lines running through it. Two separate ovens with separate conveyors, and two separate heating systems are incorporated in a single shell 21 feet wide and 10½ feet high. The production flexibility of the new unit comes from the fact that each section may be controlled independently of the other, not only by temperature changes, but also by conveyor speed.

One oven, for example, can be operated on a 15-minute baking cycle at 400 degrees, while its twin section is working on a 90-minute baking cycle at 200 degrees.

Air in each of the twin sections (each representing a volume of 500 cubic feet) is circulated at the rate of 65,000 cubic feet per minute, or a total of 13 air changes per minute.

Painted signs stacked on trucks are carried through the oven on a continuously moving floor conveyor. As each truck passes the vertical slotted air openings in the side walls of the oven,



*View from roof of Stout Sign Co.'s main plant shows relatively small space required to house company's new continuously moving paint baking line, and how, through protruding section, heaters, blowers, motor starters, etc., were grouped out of the way.*

heated air blows along the entire length of the sign to provide uniformity.

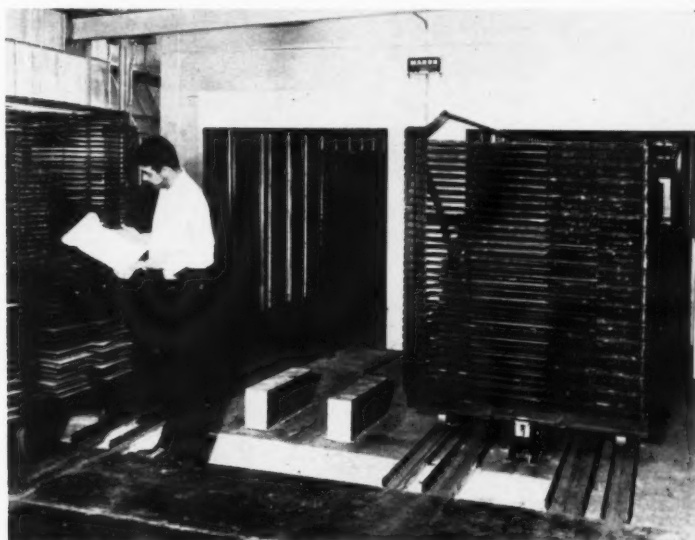
Although the large volume of air means that there is a very low temperature difference between the inlet side and the exhaust air side of the sign, quality and uniformity of finish is provided by reversing the air flow four times during its passage through the oven. In effect, this provides four zones in the oven with the air flow staggered as the work passes from one zone to the next. The trip through the oven may vary from 15 minutes to 1½ hours.



PHOTOS COURTESY  
THE R. C. MAHON CO.

*(Left) — Internal view of one of the twin, conveyorized paint baking sections. Vertical slots in the metal slides allow air to be reversed four times while being changed 13 times per minute.*

*(Below) — Exit end of new automatic paint baking line. Note type of special racks used to carry stacked signs in flat position through the twin oven sections. Addition of conveyor dogs to the trucks allows automatic engagement to moving floor conveyor.*







**APARTMENT-TYPE KITCHEN** combines all-steel base cabinets, in Cambridge Blue baked on enamel finish, with wood-on-steel wall cabinets featuring wood fronts of select white maple in "Spice Maple" finish. It is designed to offer the maximum in cabinetry, plus free-standing appliances in a compact, labor and step-saving design within a limited area. Toledo Desk & Fixture Co., Maumee, Ohio is the manufacturer.

**ALL-GAS KITCHEN CENTER** by Norge Division, Borg-Warner Corp. With the addition of a new gas refrigerator, which was introduced recently, the company can offer a gas food preparation appliance package such as shown here. The new gas refrigerator is Model CTGI-110. The built-in wall oven and surface unit are currently available.

**the MPM...**



**AUTOMATIC ICE SERVER**, a feature of the Norge refrigerator at left, makes 18 cubes at a time, with storage capacity in each refrigerator ranging from 162 to 180 ice cubes. Plumbed into the water supply, the ice server fills automatically, freezes the water, drops the cubes into a storage bin, and shuts off automatically when bin is filled.

(Below)—**SEE THRU VACUUM CLEANER**, with its power window at top, enables the housewife to see when the dust bag is full and should be changed. Called the Model 121, the Lewyt cleaner has a motorized beater-sweeper, stand-upright handle, wide-beam headlight, big rubber tired wheels, and cleaning tools that ride on back.



JUNE • 1960 MPM

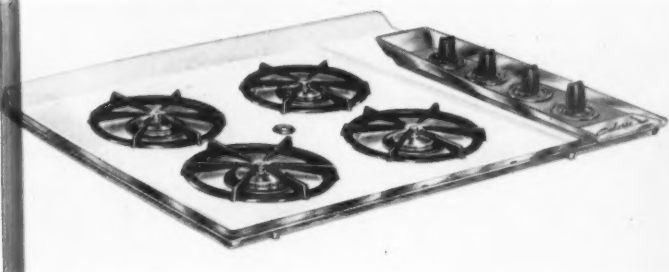


# ... foto-news

**AIR CONDITIONER** by Carrier Corp., Syracuse, N. Y., gives 12,000 Btu's, has a 1-hp motor, 2-speed fan control, and Bonderized steel cabinet with sprayed resin prime coat and baked on finish.

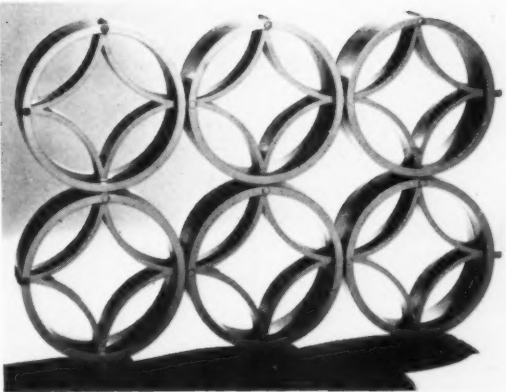


**BUILT-IN TOP-BURNER** gas range was introduced recently by Caloric Appliance Corp. The unit features counter-top controls for easy visibility and operation, and color-coded burners, with each burner color coded to the proper control. The unit also has a hinged top, gives increased cabinet space, is easier to install, and has the optional feature of Thermo-set burner units.

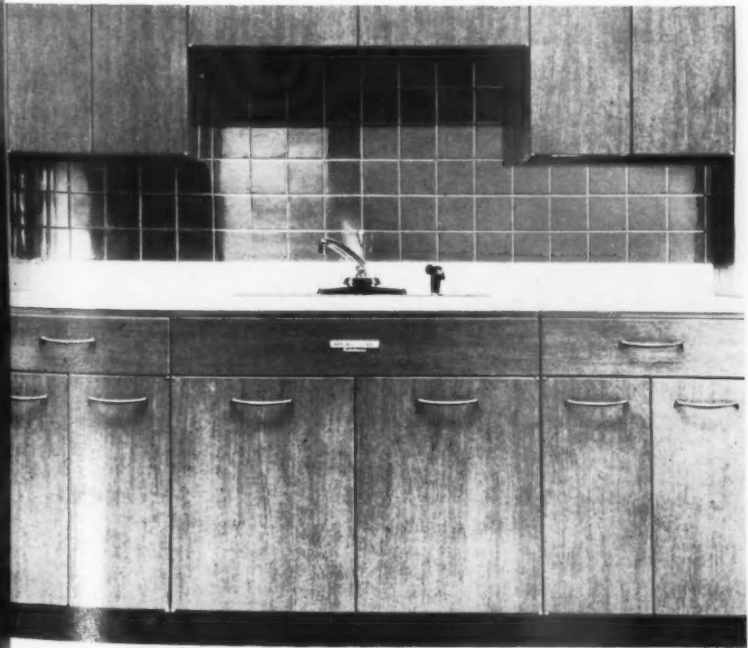


**KITCHEN CABINET FINISH** that blends the strength and permanence of steel with the warmth and texture of fine wood is shown installed as a typical kitchen cabinet unit. The finish is a vinyl plastic designed in a natural mahogany wood grain pattern that is bonded to steel cabinet doors and drawer fronts. Cabinets with the new finish are manufactured at Republic Steel Corp.'s Berger Division, Canton, Ohio.

(Right)—**ALSHADE**, new solar and decorative screening system by Aluminum Co. of America, is being offered in this pattern called "Shad-O-Wheel." Three variations are finished in a choice of 11 hues, part of Alcoa's line of Alumalure colors.



(Below)—**STAINLESS STEEL LOCKERS** by Flxible Co., Loudonville, Ohio, provide permanent good looks and a durable surface in this installation in Manhattan's Grand Central Station. There is a total of 2,712 lockers.



# FOR SUPER SAVINGS

## STANDARDIZE 100% ON SOUTHERN FASTENERS

Today more cost-conscious management men are taking a new hard look at quality fasteners as a partial solution to production problems. These men know that faulty fasteners often take a big toll in profits because of rejects, downtime, waste or spoilage. Likewise, they know that quality fasteners help insure more profitable operations through elimination of needless production hazards.

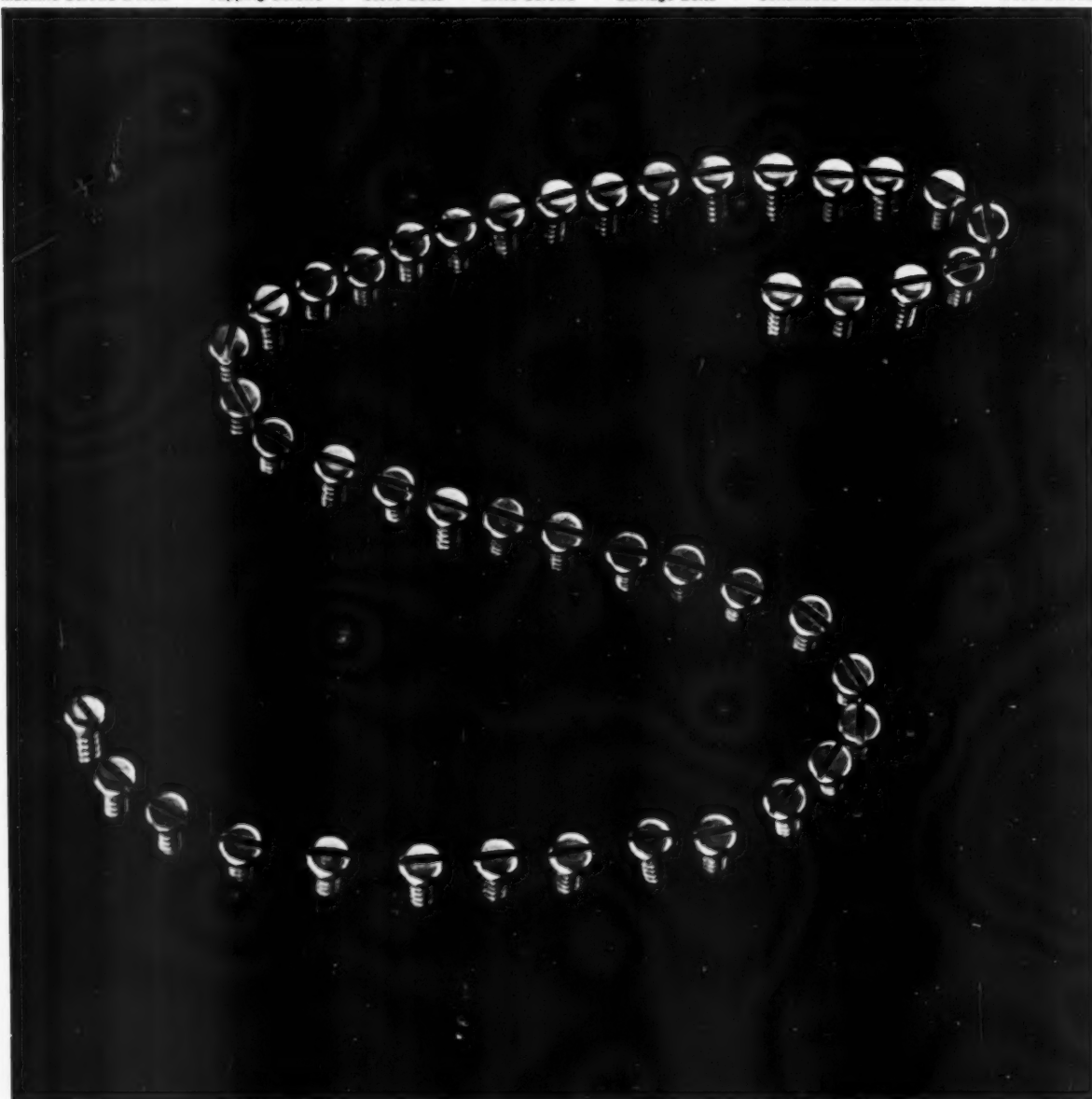
It's good sense to standardize 100% on Southern fasteners for production and for profit. Southern specializes in standard fasteners for industry. All are USA-made in our own plant.

For super savings all along the line—your production line!—standardize 100% on Southern fasteners. Ask your nearest Southern distributor for your free copy of our new chart BP-2 describing Southern's new industry-approved bulk package and palletizing system, or write Southern Screw Company, P. O. Box 1360, Statesville, North Carolina.

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## Water cooler production at Ebco

**E**ARLY THIS YEAR, Ebco Mfg. Co. introduced a new model in its line of Oasis water coolers — the On-A-Wall. As its name implies, it is designed to be mounted directly to a wall at any height from the floor.

The unit makes extensive use of plastic laminate on steel. Both side panels and front panel are fabricated from 20-gauge plastic-laminated steel. This is accented by an anodized aluminum grille and hand-polished mirror-finish top.

Water is dispensed with Ebco's Dial-A-Drink bubbler. A remote outlet is also featured.

The laminated sheets for the coolers are purchased in two sizes — the sides are fabricated from 14½ by 25⅜-inch sheets, and the front panels are fabricated from 19 3/16 by 20½-inch stock.

The back panel, which is not laminated, is fabricated from 14-gauge steel sheets measuring 28¾ by 18¾ inches. The backs are blanked in two "hits," followed by three forming bends on another press and one offset bend near the top of the sheet. This bend is to allow a plate to be inserted in back so the cooler may be suspended from a wall.

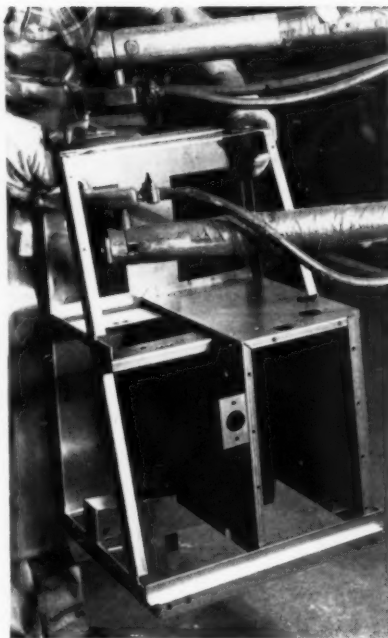
The frame of the On-A-Wall is composed of 14 major pieces which are spot welded to form the "skeleton" of the cooler. The frame components are fabricated from 14-gauge stock on three presses — 36, 40 and 50-ton models. All three presses are equipped with T-slot bed plates.

The accompanying picture story illustrates the efficient, well-coordinated assembly and packaging techniques that follow fabrication in the production of the water cooler.





*On-A-Wall water cooler mounted in position.*



**1** Spot welded steel frame is the "skeleton" of the water cooler. When the frame is completed, it is put on an overhead conveyor and taken to the paint room. Parts move through a five-stage phosphatizing machine. Moving along at five to seven feet per minute, they are then dried in a hot-air furnace.



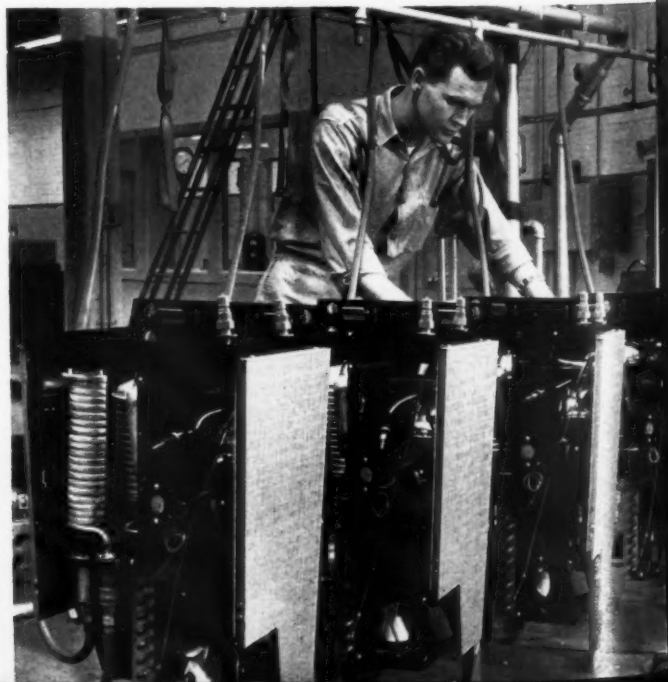
**2** (Above) — The dried frames move along the conveyor and are dipped in black Japan lacquer. The parts then proceed to the paint baking area.

**6** (Right) — Cooling tanks and pre-coolers are added in the next stage of assembly.

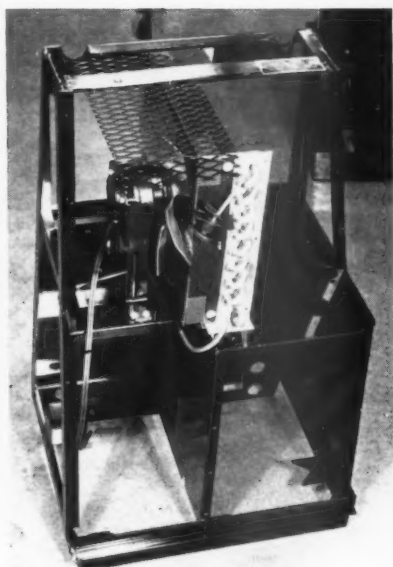


**7** (Lower right) — The coolers are now ready to be pressure tested. Water is forced into the water lines of each unit under pressure of 300 pounds per square inch. This pressure is sufficient to detect the most microscopic leak.

**5** Refrigeration controls and vinyl laminated side panels are then added.







**3** Condensing coil, electric fan, and fan grille protector are installed while the fan is in an inverted position.

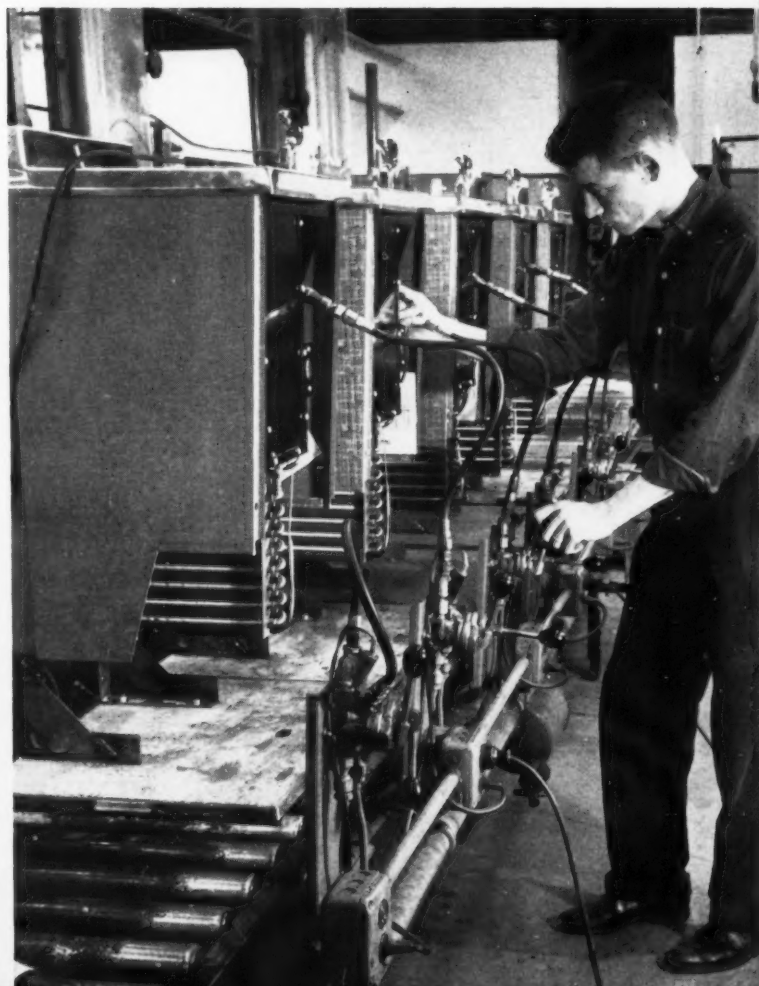


**4** The frames are then turned right side up and hung on a special steel bracket. The bracket firmly supports the cooler as it moves down the production line on roller conveyors. One-quarter horsepower, internally sprung, hermetically sealed compressors are then installed and refrigerant lines are brazed.



**more photos  
on next page →**

**8** (Below)—Granulated cork is then poured in and the unit is vibrated (note vibration table) to insure even, thorough distribution of the cork. A hot sealing agent is then poured over the cork insulation to provide a vapor seal.





**10** After the final tests are passed, the coolers move into "final assembly," where anodized grilles are joined to the base of each unit. Each cooler is given a final cleaning, and instructions, manuals, and tags are added.

**12** After the cooler has been removed from the special mounting bracket used in assembly, it is laid face up and a shipping carton is set in place.



**11** Vinyl laminated steel front panels are snapped into place and the On-A-Wall water cooler is ready to package.

**13** Carton flaps are then folded and stapled, the unit is turned over, and the carton is stapled on the bottom. The packaged units are moved to the end of the production line and stacked four to a skid.



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motor-protector internally mounted, hermetically  
sealed . . . rotalock service valves rotate 360°  
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Put "plus performance" into your packaged air conditioners with these four-cylinder Copelaweld welded hermetic motor-compressors. You'll get top B.T.U. capacity and operating dependability. For complete specifications, request Bulletin 5909.

For smaller sizes, investigate Copelaweld two-cylinder models, ½ through 2 H.P., and Copelaweld Space Savers, ⅛ through ⅓ H.P.



## PERFORMANCE DATA

Model	Capacity* B.T.U./Hr.	Full Load Amps.	Locked Rotor Amps.
4U16-252	29,400	13.6	70
4U18-302	32,800	17.9	70
4U22-352	39,400	21.4	126
4U26-402	45,000	27.8	126

\*Capacity based on A.S.R.E. rating conditions:  
Evaporating Temperature 45° F.; Condensing Temperature 130° F.  
Suction Gas Temperature 65° F.; No liquid sub-cooling.

SINCE 1918

**Copeland**  
REFRIGERATION

CORPORATION, Sidney, Ohio





## You can't buy this tie in a haberdashery

Even the finest English clothiers couldn't furnish you a necktie like this one. We're using it to demonstrate how you can form USS Galvanized Steel Sheets. Even when we tied it in a bow, there was no flaking of the zinc coating.

USS Galvanized Sheets don't flake because there's a tight, uniform bond between zinc and steel. Add excellent ductility and you have galvanized sheets that are ideal for severe fabrication. To give your products added quality, always specify USS Galvanized Sheets.

*USS is a registered trademark*

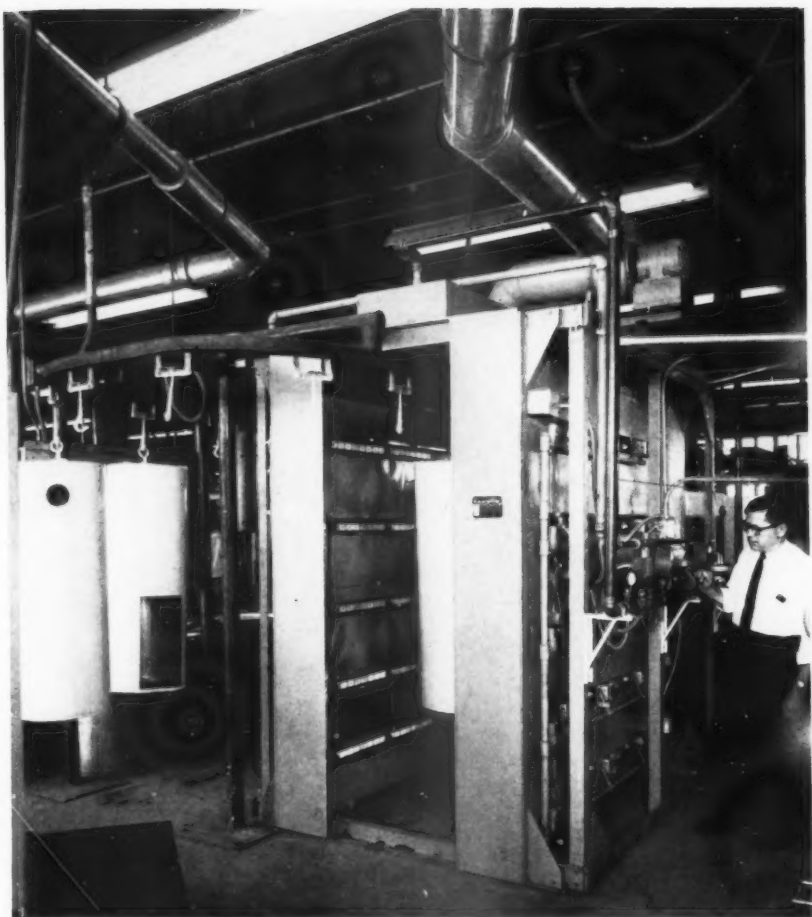


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**United States Steel**







Gas-fired infra-red enamel baking oven. Water heater shells travel through the oven on overhead conveyor.

## Infra-red gas oven used for water heater finishing

**I**N 1959, AN INFRA-RED enamel baking oven was installed and placed in operation at the Trageser Copper Works, Queens, Long Island, New York. According to company executives, the move proved highly successful in connection with the company's business of producing water heaters, since with the installation, water heater shells could be finished at a lower cost and with greater efficiency.

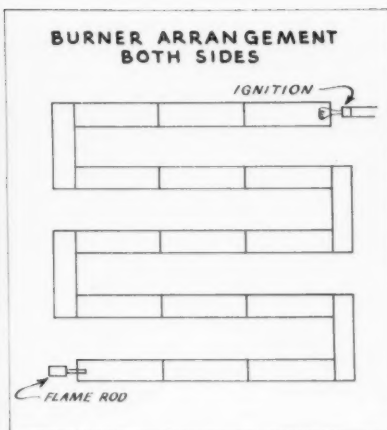
Trageser's old oven was dismantled on a Friday and over that same weekend, the new unit was assembled, connected, started, and adjusted; by Monday morning the new oven was ready for production.

The heating zone of the oven is eight feet long. Side walls constitute the radiating surface, with 19 burner heads on each side of the wall arranged in line to

form one continuous burner. Both the conveyor and the ventilating blower are interlocked and must be operating before ignition can take place. Ignition is by a glow coil at the upper end of the line, and the flame travels the entire length of the burner assembly, about 40 feet, when ignited.

This flame must be proved by a flame rod at the far end of the burner (40 feet) within 10 seconds or the gas is automatically shut off and the starting cycle must be repeated. Flame failure protection is given by a control which actuates a manual reset shutoff valve. Aluminum sheet, backed by insulation, is placed between burner lines to increase the radiation effect.

The ventilating blower has a rated capacity of 1300 cfm at room temperature. At an exhaust temperature of 250°



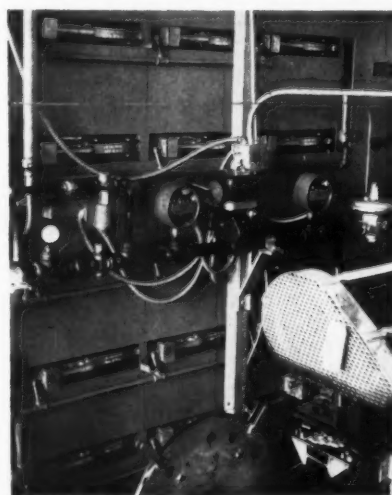
PHOTOS COURTESY THE BROOKLYN UNION GAS CO.

F., approximately 970 cfm are exhausted. Since only two gallons of solvent per hour is used, the blower capacity is well over the National Fire Protection Assn. requirement of 10,000 cubic feet per gallon of solvent. Limit controls protect against low or high gas pressure and high temperature.

The oven walls can be moved in or out, varying the distance of the radiating surfaces from the work, and making possible adjustments for enameling other parts. Maximum width possible is 48 inches; minimum width is 15 inches.

Tests have shown that the current operation results in a hard and durable finish on the shells. Surface temperatures are reached with a short travel, and conveyor speed has been increased by nearly 50 per cent. With natural gas costing about \$1.50 per mcf, the hourly gas cost is 75 cents, with a burner input of 500,000 Btu. At this rate, the owners of Trageser believe that their investment can be regained in less than two years from the date of installation.

*Manifolding and controls for burners.*





**Cook's** helps maintain the life expectancy of



**Transformers**

*"The choice of a paint to be used on L-M transformers is a most carefully controlled procedure," says A. R. Waehner, Director Transformer Product Sales, Line Material Industries, McGraw-Edison Company. "Three factors must be considered, namely: 1) Long life under extreme weathering conditions, 2) Low maintenance, and 3) Good appearance."*

*As a result, paints used on L-M's transformers must pass exceptionally rigorous tests. All paints are first screened by a Weatherometer Test. Those passing that test are then subjected to 1000-hour salt spray tests which are followed by full two-year exposure tests on the Florida East Coast.*

*Only a paint that successfully passes through all these gruelling stages can be used on L-M transformers—(and Cook's is proud to be a supplier of Line Material's transformer finishes.)*

*Hundreds of manufacturers producing thousands of other products also rely on Cook's industrial finishes for extra protection and the selling power of extra beauty. How about your product? Find out how Cook's may add to its durability, good looks and buy appeal.*

**Cook Paint & Varnish Company • Kansas City, Missouri**  
Factories: Kansas City • Detroit • Houston

**COOK'S  
PAINTS**

# Westinghouse food waste disposer



## "CUSHION-QUIET" DESIGN

**C**USHION-QUIET" OPERATION heads the list of features of the new Westinghouse food waste disposer. A full-circle ring made of Buna-N rubber serves as a sound-deadening shock absorber and permits floating-suspension of the unit.

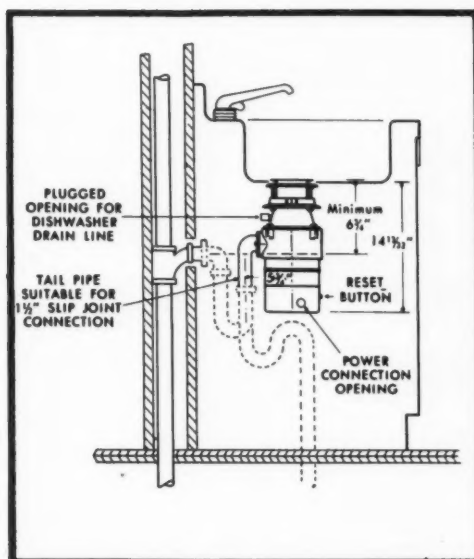
Also contributing to the noise reduction is a Buna-N drain gasket, which absorbs vibration and prevents transmission of sound through household drain pipes—and silent-sleeve, permanently-lubricated motor bearings.

Super-hardened stainless steel impellers, horizontally rotating on the fly-wheel at 1,725 rpm, force waste against

the grinding ring, where the cutting edges reduce the waste to uniform, fine particles.

The disposer is finished in ivory white lacquer and has a plugged opening for a dishwasher drain line. The appearance of the visible portion of the unit is enhanced by a new chromium plated die casting sink stopper and a highly polished stainless steel sink flange. Fast, low-cost installation is assured by step-by-step instructions provided with each disposer. Flexible drain connections and clamps are furnished. No other accessories are needed.

Power is cut off automatically by the



(Above) — Schematic of the Westinghouse Model JDA150W Food Waste Disposer showing dimensions and typical installation.

built-in "Thermoguard" if the unit jams or is overloaded. When the trouble is corrected the motor is started by pushing the reset button at the front of the unit.

Grinding and motor housings are made of corrosion-resistant aluminum alloy castings. A molded rubber snap-out splash guard prevents food waste from splashing out during operation of the disposer and snaps out to dispose of bulky foods. The sink stopper acts as a sink water seal, sink strainer and cover when the disposer is operating. The disposer mounting assembly is supported by the sink drain opening flange.

A split-phase, 1/3-hp motor operating on 115 volts and 5.5 amps powers the unit. The disposer may be operated at continuous feed or single load, at the user's option. A double-wall chamber above the motor, and motor compartment sealing surfaces, with tolerances of 3 millionths of an inch, protects the motor from water damage.

The disposer is 14-13/32 inches tall, 7 1/4 inches wide and 11-9/16 inches deep. Its net weight is 21 pounds.



## 600-1,000 DRUMS PER HOUR

**A** NEW INSTALLATION at the Chicago plant of Inland Steel Container Co. is the first to provide fully automated sheet handling, trimming, edge cleaning, forming, and mash welding of steel drums.

Inland produces a full line of steel

rolled steel sheets of from 14 to 28 gauge can be fed into the line in lengths of from 44 to 72 inches and in widths of from 15 to 42 inches. Sheets 79 inches in length can be accommodated with additional tooling.

### **Changeover time under ten minutes**

Normal changeover times of less than ten minutes are made possible by several automatic features, including push-

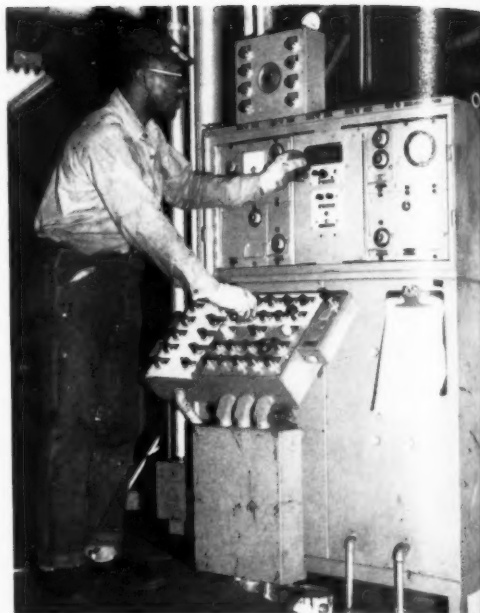
### **equipment converts quickly to run various sizes of steel drums**

and stainless steel shipping containers, including galvanized and heavy duty ICC drums.

High production speed is not the only virtue of the new equipment. The line processes drums ranging from 8 to 65-gallon capacities, and modification of the equipment to change from production of one size to another is accomplished in a matter of minutes.

Drums of 30 to 65-gallon capacity are formed and welded at a speed of 600 per hour and smaller sizes at the rate of 1,000 per hour. Hot or cold

button adjustment of the forming rolls, side guide rollers, etc. The biggest factor in the short setup time, however, is the provision for separate sets of hourglass rolls to accommodate each diameter drum. Each set of these rolls, which maintain an accurate lap while the formed drum is being guided into the welder, are mounted on a removable sub frame. Previously, it was necessary to painstakingly replace and adjust the rolls to fit a new drum diameter. On the Inland equipment, the sub frame is disconnected from the welding unit, re-

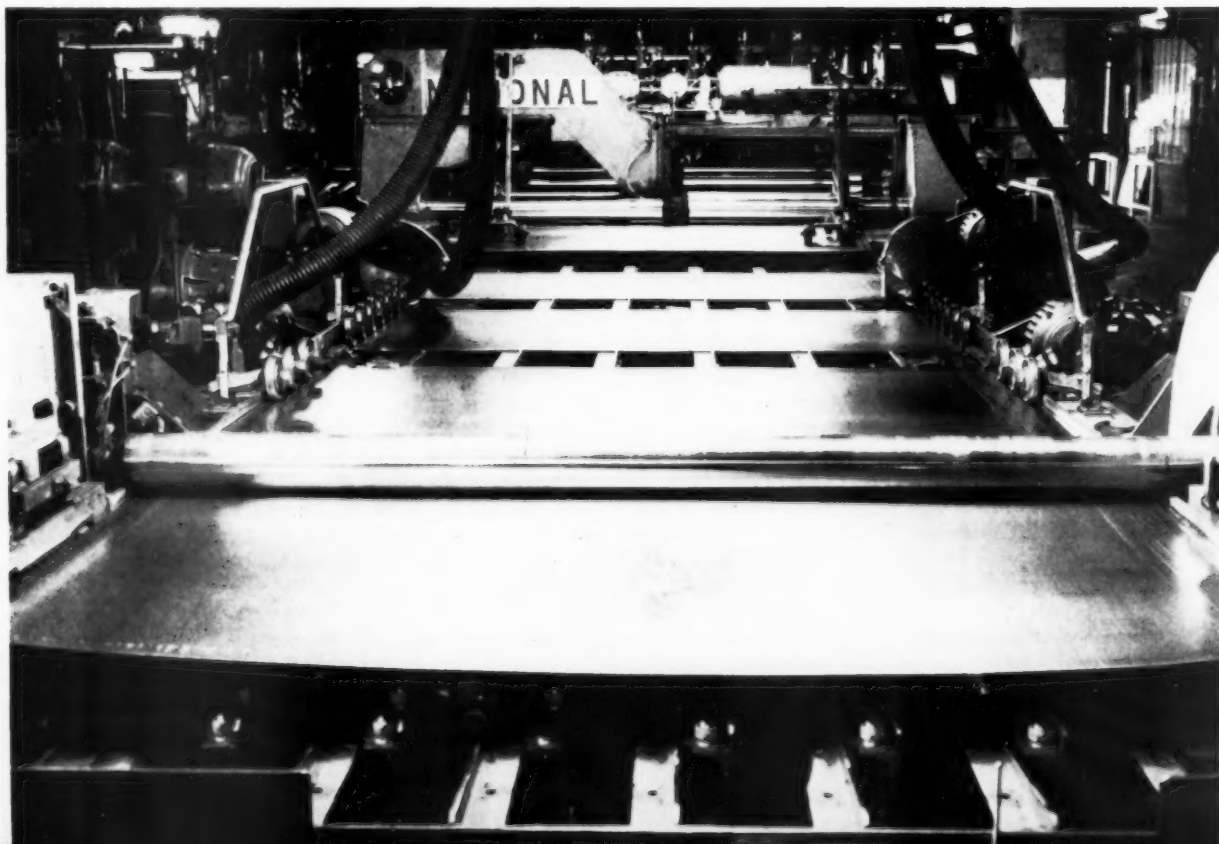


*One man operates entire line from master control panel. The panel is equipped with automatic monitoring devices providing control of the process within narrow limits. It also has numerous trouble shooting devices for pinpointing the source of trouble quickly when the monitoring system indicates that process control limits have been exceeded.*

### **AN MPM STAFF FEATURE**

*In background are high-lift feeder and edge welder with edge cleaning equipment in center. Transfer mechanism in foreground carries sheets to left into forming rolls.*

## **Automatic fabricating line for st**





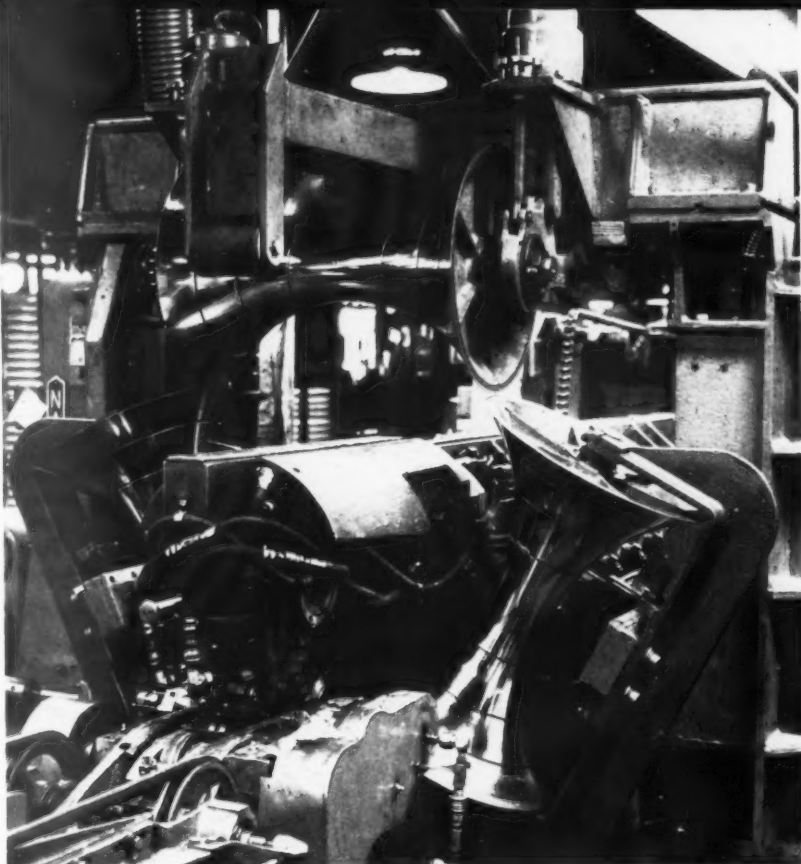
moved with an overhead crane, and the new sub frame with the correct hourglass rolls is lowered into position. Cam-type, air-operated locking devices quickly and accurately secure the sub frame to the main frame of the welding assembly. All electrical and air lines on the frame are fitted with quick-change connections.

If drums of special diameters are run, it is necessary to replace the upper wheel-type welding electrode, which requires an additional 30 minutes. For standard diameters, the maximum changeover time is ten minutes.

The motorized roll forming station adjustment uses a pushbutton jogging station to easily tighten or expand the shape of the shell in the forming rolls. Two pushbutton stations are employed; one is located close to the roll forming station and the other is at the operator's position at the front of the welder. The side guiding roller assemblies are hinge-mounted and adjusted by a motor-operated screw controlled by a pushbutton jogging switch.

#### Slitting to close tolerances

Another unique feature of the drum line is the slitter, which trims sheared sheets to tolerances within 0.005 inch.



Hourglass rolls guide formed drums through welding mechanism. Rollers are mounted on a sub frame which is easily replaced to accommodate drums of different diameters. Top roller is power driven to give additional stability to the shell.

The special squaring and trimming units enable Inland to use mill-cut sheets rather than the more expensive precision-cut material. Following the slitting, the sheets pass through an edge preparation station, where four abrasive

wheels — two on each side of a sheet — clean the slit edges. These abrasive wheels, which consist of radially packed emery cloth sheets, are adjusted auto-

to Page 82 →

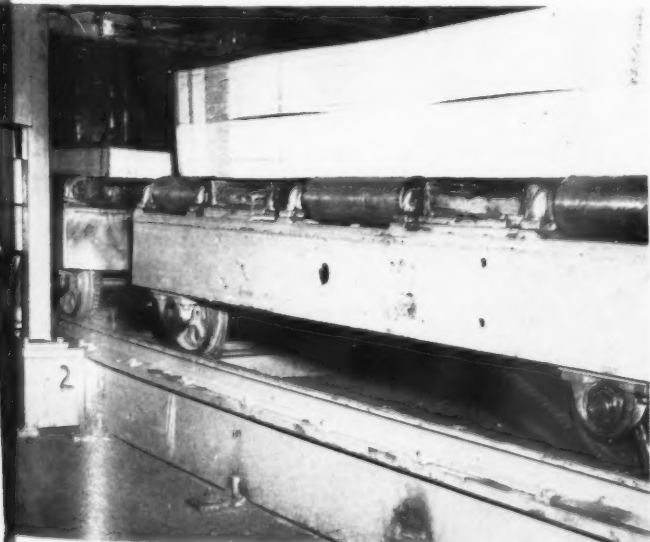
turn page for drawing and photos of automatic forming and welding line →

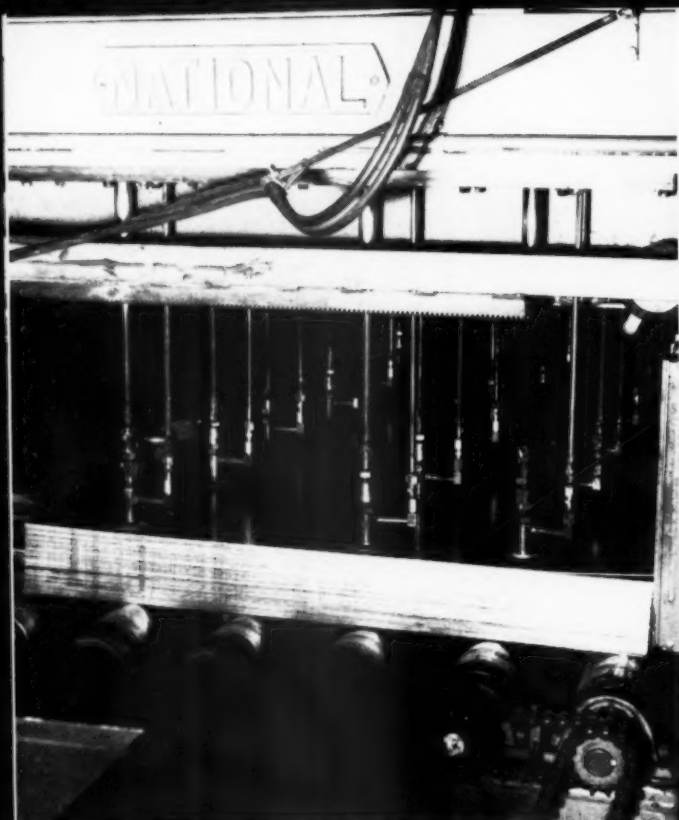
## for steel containers

#### EXCLUSIVE MPM PHOTOS

Sheared sheets are stacked on power dollies at feeding end of line. Stack at right will be moved into position when supply on center stack is exhausted.

Sheets for drums are slit and sheared at the rate of up to 200 feet per minute and stacked at left. Coiled stock is unloaded from railroad cars on spur track in right background.

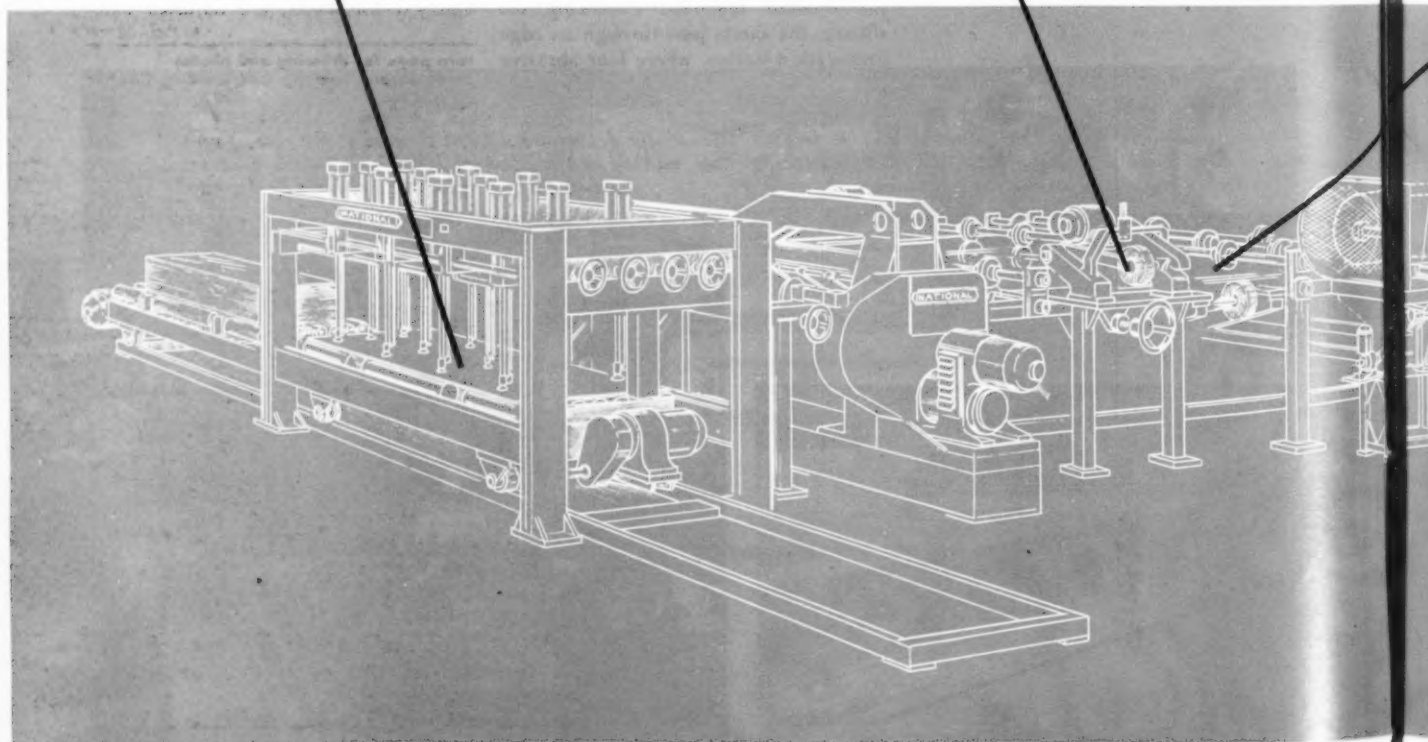




*High-lift vacuum pickup lifts sheets to magnetic rolls from which they are then fed into slitter.*

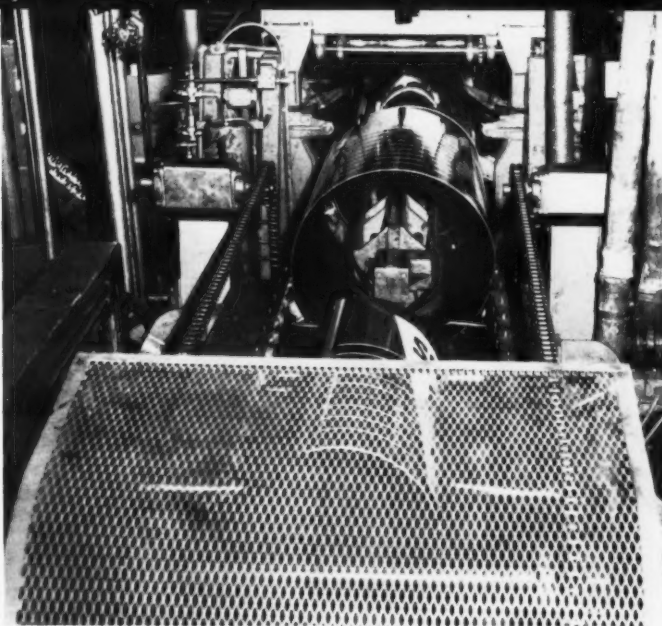


*One of the four abrasive wheels used in edge preparation, following slitting operation. Another wheel is mounted below to prepare the bottom edge, and two more wheels prepare the edges on the opposite side of the sheet. The wheels compensate automatically for wear.*



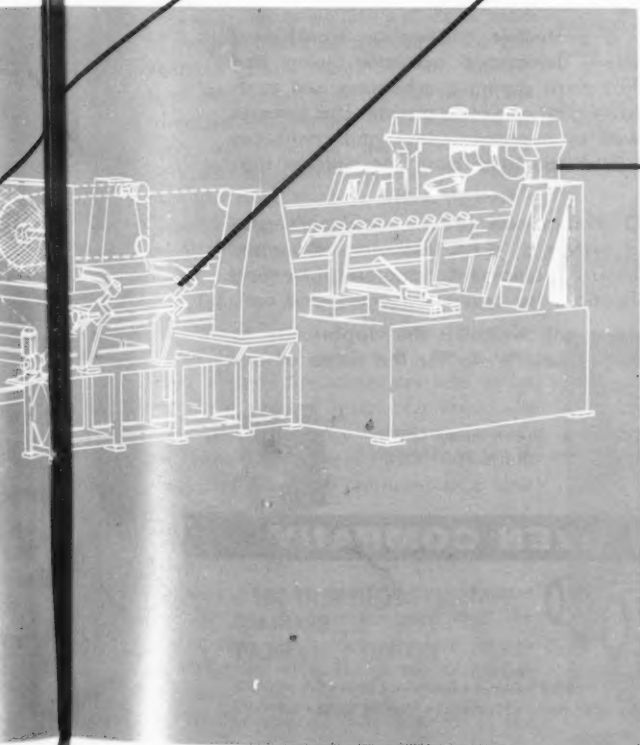


*The sheet passes through a pinch roll and approaches the transfer table where it is pushed into the forming rolls seen in the background.*

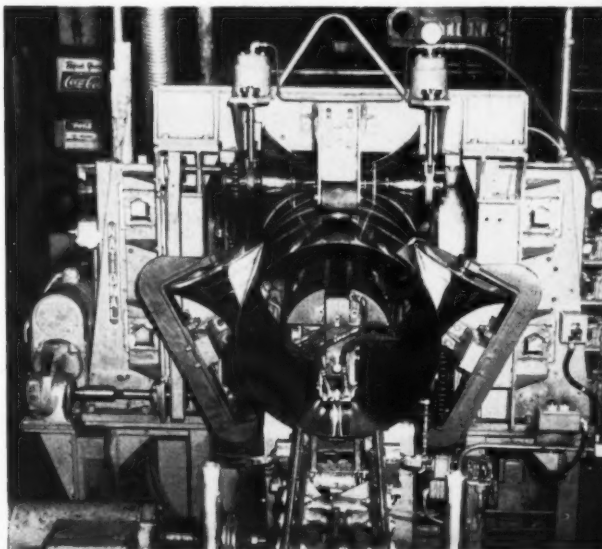


*Shells move from the forming rolls to the welder. Note partially formed drum in foreground.*

EXCLUSIVE MPM PHOTOS

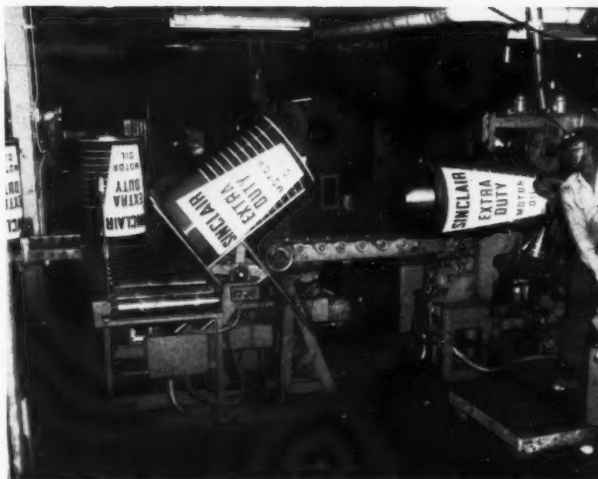


*(Right) — Swaging unit (inside drum) blends the inside contour of the weld seam as the drum leaves the welding station.*

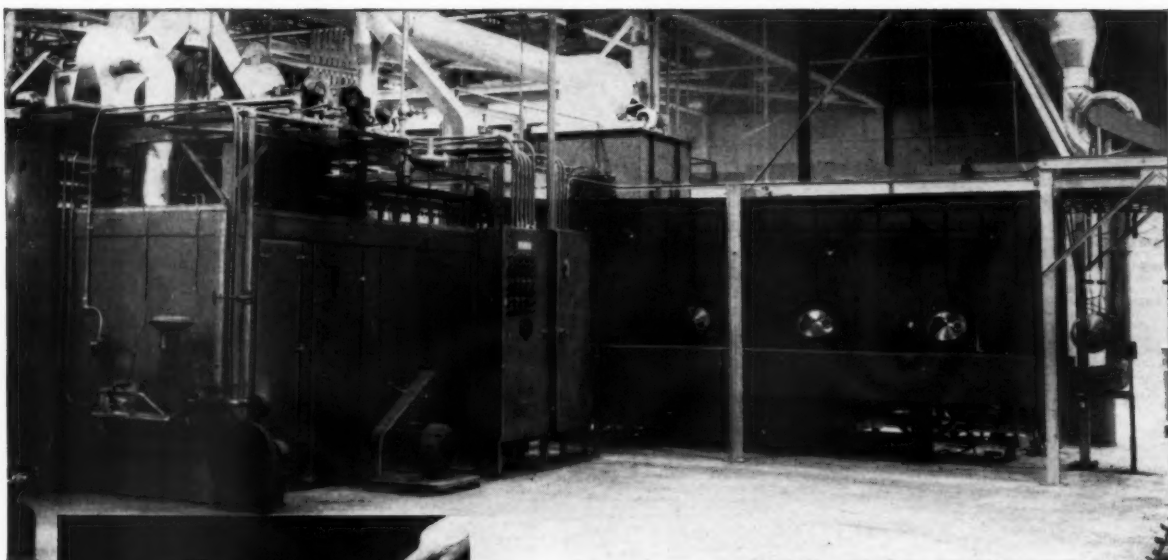


DRAWING COURTESY  
NATIONAL ELECTRIC  
WELDING MACHINES CO.

*After welding, the drum shells are upended onto a transfer conveyor, where they proceed to final fabrication stations.*







## JOB REPORT

### PRODUCT:

Stamped steel covers and structural components for high-voltage Westinghouse transformers. Coated with CORVEL cellulosic to provide 12000 volts insulation, a gasketless seal, and a durable, decorative weather proof surface.

### PROCESS:

Preheat parts, dip in "fluidized" bed of fine, dry plastic powder, and postheat. Oven temperatures held to plus or minus 5°F. Licensed fluidized bed process deposits tough, corrosion-resistant coating of uniform thickness on all surfaces, regardless of part configuration.

### PRODUCTION:

Uninterrupted production of finish-coated parts from conveyORIZED installation of preheating ovens, dipping tanks, excess powder blow-off and collection units, and postheating ovens—custom engineered, fabricated and erected by MOCO for economical operation by Westinghouse Electric Corporation.

\*Trademark of The Polymer Corporation for finishing materials.

## MOCO, the Polymer Corporation and Westinghouse Team-up to Beat the Elements!

Teaming up to take advantage of the unique new fluidized bed coating process, Michigan Oven Company, The Polymer Corporation and Westinghouse Electric Corporation engineers recently completed target-date installation of a system for applying CORVEL® fusion bond coatings at a modern new Westinghouse manufacturing center.

Designed to apply a protective coating on transformer covers, the new system demanded accurate timing and temperature control of parts during pre-heating and post-heating, complete scavenging of excess powder (for general safety reasons as well as economic ones), and continuous movement of parts in a specified path for uniform dip-coating.

Experienced MOCO design and process engineers provided an integrated system of ducts, blowers, conveyors, and heating and control equipment completely meeting Westinghouse specifications for quantity, quality and cost.

MOCO problem-solvers will welcome the opportunity to team their talents with yours. Write for the name of our representative nearest you.

**FREE**—Send for your MOCO bulletin showing typical finishing system applications and specifications; no cost or obligation, of course.



## MICHIGAN OVEN COMPANY



FINISHING EQUIPMENT DEPT.  
423 BRAINARD  
DETROIT 1, MICHIGAN

Washing Machines • Bonderizing Units • Dry-off Ovens  
Dip Tanks • Spray Booths • Flo-coaters • Finishing Ovens • Conveyors

### Adjustable punches and dies

### offer multiple hole punching

A NEW ADJUSTABLE PUNCH AND DIE program which enables the user to economically punch a number of holes of varying size and shape in one operation, and to re-use the tooling over and over again, has been developed.

Called Adjustable Punches and Dies, the basic elements in the program are specially-designed die sets on which punch and die holders can be arranged, by means of a template, into a variety of hole patterns. This program can be used for both long and short run production jobs. It has its best application, according to the manufacturer, where multiple holes are to be punched on a short run basis, because it is said to save the time and money involved in punching and drilling holes individually, or in having a permanent die made up. Material as thick as 16 gauge mild steel and  $\frac{1}{8}$  inch aluminum may be punched to tolerances of plus or minus .005 inch.

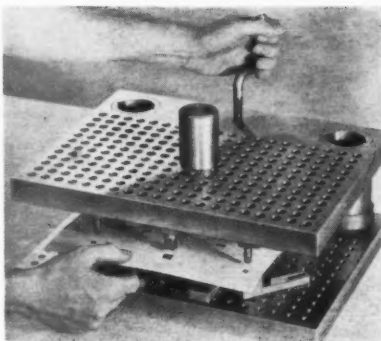
It is claimed that two-way versatility is possible with the adjustable punch and die program because the setup man has the choice of either setting up the punches and dies outside the press or setting them up with the die set in the press.

Usually, setup would be made outside of the press because it is safer for the operator. There would be no hazard from accidental tripping of the press while the setup man is working on it. Also, setup outside the press would normally be faster because the setup man has more room in which to work: "knucklebusting" and difficult-to-make inside adjustments are minimized.

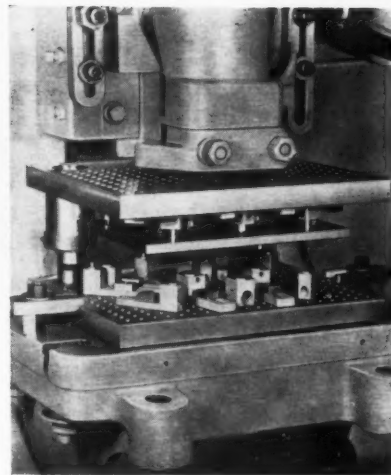
One of the additional advantages of being able to set up the die set outside the press is that it allows one die set to be set up while another die set is running. If there are numerous jobs to be run, and limited press facilities are available, this ability to set up outside the press does away with downtime while the die set is adjusted to a new hole pattern.

If it is desired to add to an existing setup while the die set is already in a press, this can be accomplished because the die sets are so designed that the punch and die holders can be set up with the die set in the press, as well as outside.

The "pegboard" hole pattern of the die set is spaced on  $\frac{3}{4}$  inch centers in



(Above) — A removable crank-operated adjusting screw is supplied with each die set to lift and lower top plate. (Right) — Assembled die set. Note self-cleaning slug chutes in die holders.



both directions which allow 100 per cent overlap. Holes can be punched anywhere within the area of the die set.

Adjustable punch and die sets are available in two styles: back post type requiring a minimum press shut height of  $6\frac{1}{4}$  inches; and center post type requiring a minimum press shut height of  $6\frac{3}{4}$  inches. Both styles of die sets are of chrome alloy steel construction with ball bearing bushings providing negative clearance. All punches and dies are ground concentrically, and similar sizes are interchangeable.

Circular locking grooves on the die buttons can be rotated 360 degrees within the die holder and, when irregular shapes (other than round) are to be

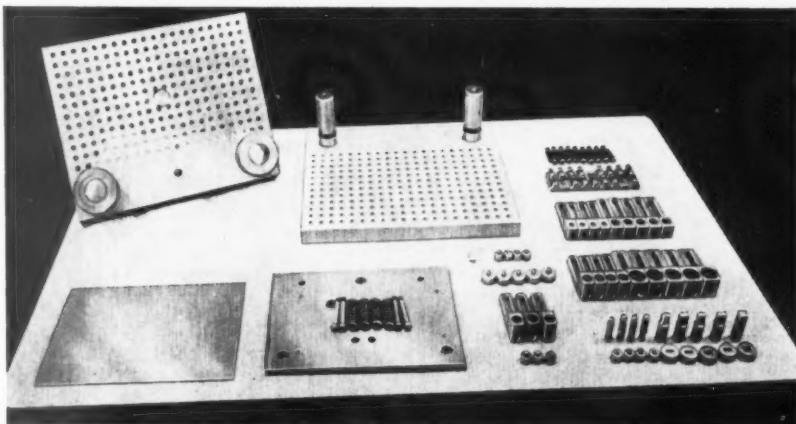
punched, this circular locking groove feature allows the die to be located radially with reference to the holder. Without this feature, it would be necessary to rotate the die holders and, in some cases, setup would be impossible due to interference between/or among die holders.

Standard punches and dies include a variety of sizes in round, square, rectangular, oval, notching, corner rounding, receptacle, electrical outlet knockout, and D-shaped styles. Special shapes, die sets, and holders are also available.

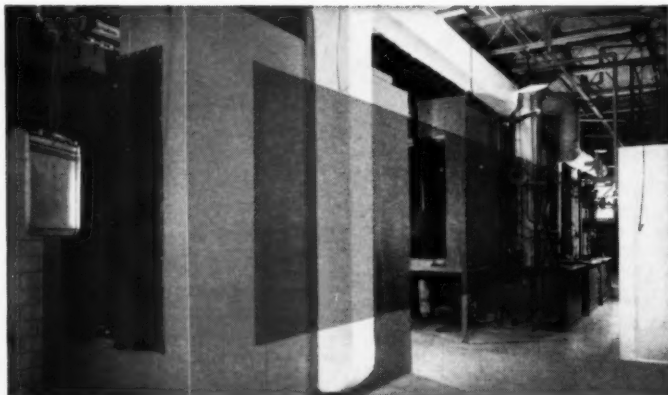
For further information, contact Special Projects Editor, Dept. 657, METAL PRODUCTS MANUFACTURING, York St. at Park Ave., Elmhurst, Ill.

PHOTOS COURTESY O'NEIL-IRWIN MFG. CO.

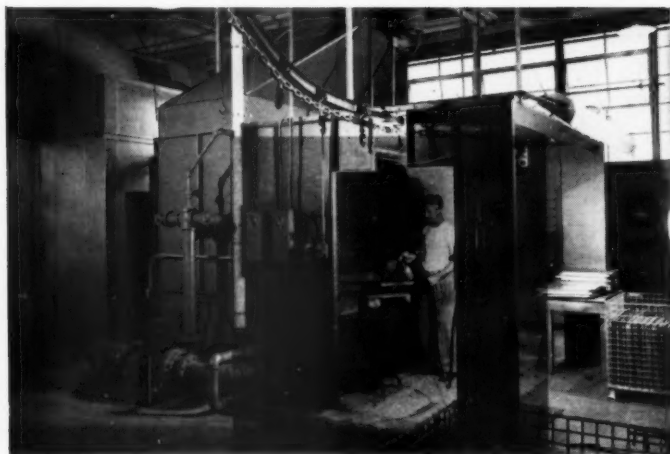
Complete adjustable punch and die set includes top and bottom plates of die set, punch holders, die holders, punches, dies, socket head cap screws, holddown nuts, locating pilot plugs, material gauges, template, and stripper plate.



## DeVilbiss Complete Finishing Systems



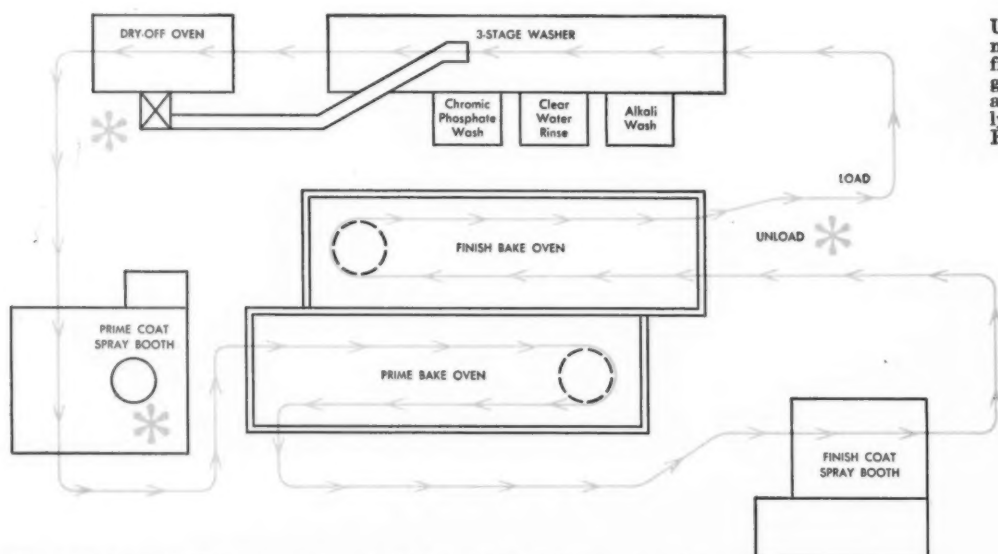
After automatic 3-stage power-spray cleaning and phosphate treating, units travel through dry-off oven, on the left.



Both prime and finish coats are applied manually with DeVilbiss spray guns. Shown here: prime coating in water-wash booth.



The system occupies less than 3200 sq. ft.; includes cleaning, and application and bake of both prime and finish coats.



Uniformity of finish is a must at Fisher. "Panels from many separate runs go into cabinets like this, and must match perfectly," says Chief Engineer Frank Skowron (left).

Here's the layout. With conveyor speed of 3 ft./min., 90 units complete the cycle every hour. Water-wash booth with turntable, and a conveyORIZED dip operation for miscellaneous parts supplement the main system shown.





## How to coat 16,000 shapes and sizes with speed and precision

That was Fisher Scientific Company's problem . . . and here's the DeVilbiss system that solved it

A laboratory is a complex of strange shapes . . . of equipment specialized to the *nth* degree.

Even so, it is astonishing to realize that the Instrument Division of the Fisher Scientific Company turns out a total of 80,000 *separate components* in manufacturing the world's most comprehensive selection of scientific instruments, apparatus, and laboratory furniture.

Of these, about a fifth (16,000) get protective coatings . . . and the heart of Fisher's finishing department for this vast array of parts is the DeVilbiss conveyerized system you see here.

DeVilbiss worked closely with Fisher engineers to develop this remarkable new system. It has been in service for over a year, applying precision coatings that resist the powerful corrosives in laboratory use. It has proved its efficiency by absorbing the plant's continually increasing production load without a hitch.

With the industry's most complete line of surface-preparation and coating and finishing equipment to draw on, DeVilbiss can supply *you* with matched components in a system tailored to your particular requirements. It is the one "single source" fully qualified to analyze your needs, then let you select the best, most economical product combination to fit your job. May we serve you?

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MENT • HOSE & CONNECTIONS •  
FLOW & DIP COATERS • SPRAY  
BOOTHES • AIR COMPRESSORS



## Power plants fig with porcelain en

ONE OF THE MOST INTERESTING installations of porcelain enameled steel by Avoncraft Division of Avondale Marine Ways,\* New Orleans, involves big industrial boilers for power plants that develop up to 300,000 KW. The conception of the idea for using porcelain enamel on a boiler is credited to John Horton of Louisiana Power & Light Co. About five years ago, this utility was encountering serious corrosion problems and Horton approached Avoncraft with the idea of using porcelain enamel as a corrosion resisting coating.

The first installation was made at Nine Mile Point in New Orleans. The second installation was then built at Sterlington, and the third unit is now under construction at Norco.

The Sterlington unit will be presented in this photo story. Material for captions was provided by A. J. Legett, Jr., Avoncraft Division manager. The in-

\*(See "Avoncraft builds 'package' porcelain enameled buildings," Page 42, April MPM).

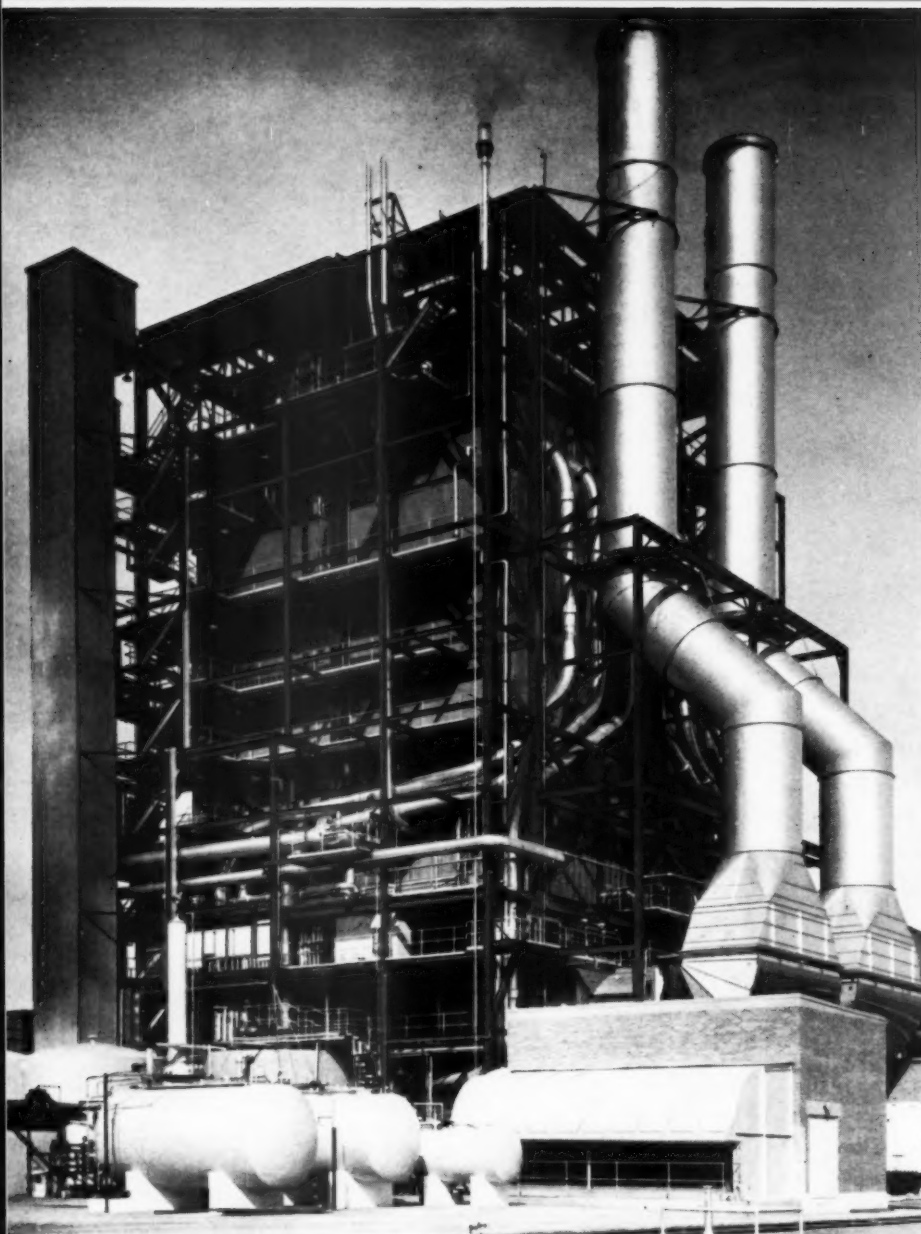
PHOTOS COURTESY THORNHILL'S STUDIO

(Right) — This section of the preheaters shows how it was necessary that the porcelain enamel be worked around a curve and fit into the adjoining shape of the boiler.

(Below) — This view from above the preheater gives some idea of the many different conditions of "fit" which required study in the engineering phase.

This industrial boiler installation of Louisiana Power & Light Co. at Sterlington is entirely clad in porcelain enameled steel. This includes roof, sides, and all the shapes of the boilers for their full height and depth. Sixty-seven tons of porcelain enameled steel were required to complete the installation.

(Below) — Photo shows the unusual construction of the porcelain enameled steel roof. All roof pans are made in different widths to accommodate the hangers that project through the roof for carrying the weight of the boiler. Roof "shingles" and telescopes to shed water.



JUNE • 1960 MPM

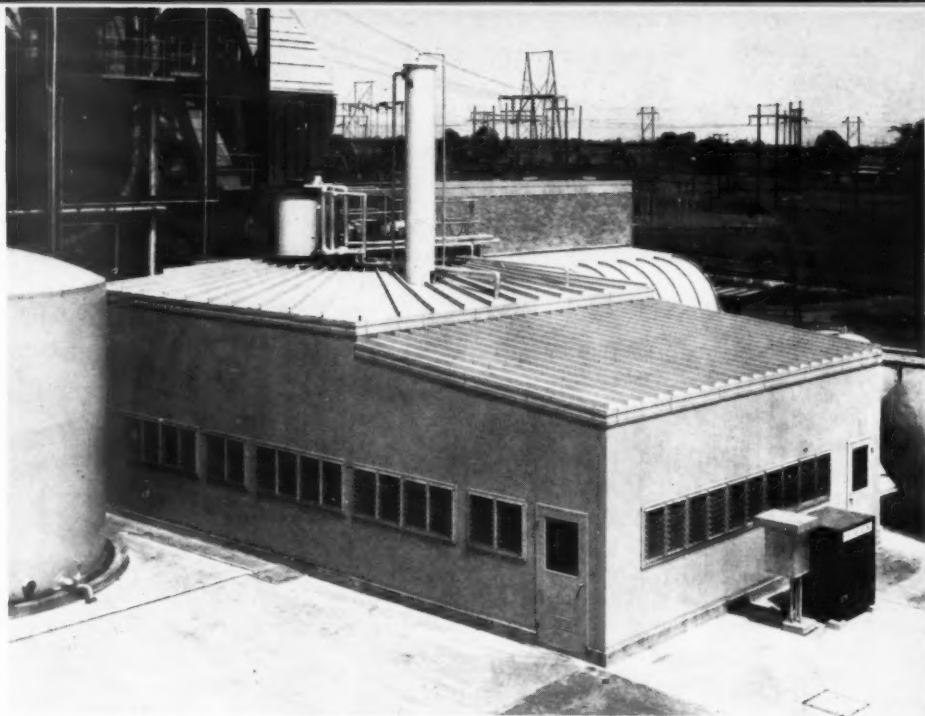
# ts fight corrosion in enameled steel

stallation required 41,000 sq. ft. of porcelain enameled steel weighing approximately 134,000 lbs.

All of the porcelain enameled steel sections that were used on the complete boiler installation were fabricated in the factory, from drawings, and installed on the job without fitting or cutting. The steel used was 14 gauge for the roof and 18 gauge for all other areas.

Standard two coat enameling (ground and cover coat) was used throughout, with acid resisting enamels used for cover coat. A distinctive "shrimp pink" color was selected by the Louisiana Power & Light Co. for the exterior color, with a neutral color being used for the reverse sides of all panels. The other visible colors on the installation are aluminum for the stacks, and dark green for the structurals.

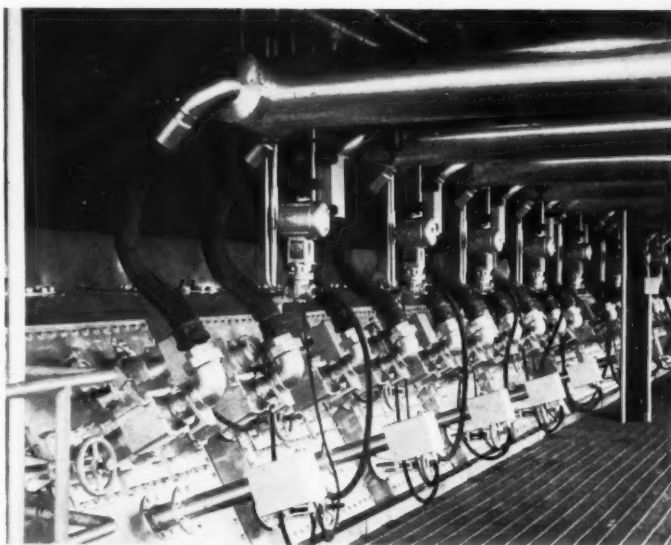
It is felt by executives at Avoncraft that the three industrial installations of this type that they have made should lead to other similar applications for porcelain enameled steel, where the requirement is principally one of corrosion resistance and lasting appearance.



*This photo shows the de-mineralizer house which is part of the boiler installation. This unit is built entirely of porcelain enameled steel with no structural members. The unit was built to shape up to a circular, concrete tank. In the roof, every panel is of a different width, length, and shape, because of this requirement.*



*(Right) — All the surfaces surrounding these burners are extremely hot, approaching 1000° F. In this instance, the porcelain enameled steel was worked around all of the burners and the adjacent insulated surfaces.*



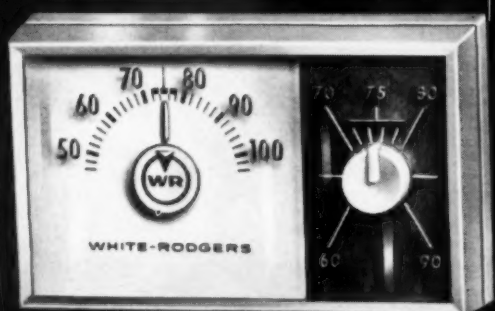
PHOTOS COURTESY  
THORNHILL'S STUDIO

*(Right) — This photo shows the covering of the intakes from the boiler leading up to the stack. Here again can be seen the installation's unusual design requirements.*

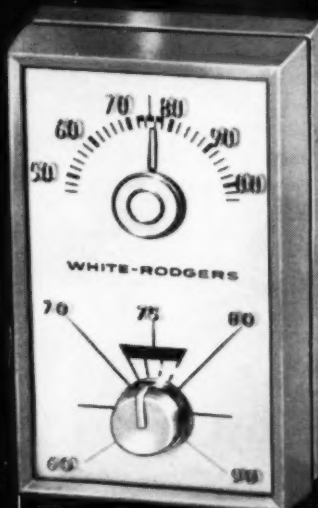




# NEW from White-Rodgers THERMOSTATS with the STRAIGHT-LINE LOOK



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The CUSTOM line

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Now, more than ever, you'll welcome this distinctive "new look" in thermostats . . . another exclusive sales "plus"—styled by famed Earl Claus—to help you sell more heating and cooling equipment in the highly competitive '60's.

You'll also discover new convenience, sensitivity and flexibility . . . available in three lines to match every possible price need, with features to meet every purpose.

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### COMING SOON!



Push-button sub-bases—  
for a complete variety of  
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#### SEALED MERCURY CONTACTS

Lifetime protection against dirt,  
dust, corrosion.



#### ADJUSTABLE HEAT ANTICIPATOR

Matches any primary control from  
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Fast, simple level-sure mounting  
for accurate calibration.



#### ARISTOCRATIC GOOD LOOKS

Elegant etched-gold dial, birch  
vener background, clear plastic  
face.



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Toronto 8, Canada  
611 Gerrard St. East

Basel, Switzerland  
Münchensteinerstrasse 2

### Dealer Trips Announced

Three separate dealer trips to three separate continents, involving a number of "firsts" in travel incentives, have been announced by Fedders Corp. for its dealers of room and central air conditioners and heating equipment. The sites of the forthcoming "Dream Holiday" trips will be Israel, Paris and Grand Bahama Island.

According to the company, the program represents the first time that any company has taken its dealer group to the continent of Asia; the first time jet planes will be used for trans-Atlantic charter; the first time a firm has offered three separate trips, each involving an entire vacation package; and the first time an island has been named for an appliance manufacturer. The name of the Grand Bahama Island has officially been changed to Fedders Island from September 12 to November 25, the duration of the trip.

### Electrical Appliance Show Set for September 10

The first in a nationwide series of Electrical Living Shows has been scheduled for New York's Coliseum, September 10-18.

Designated Electra City, U.S.A., the show will be aimed directly at the consumer. Over 50 percent of the exhibit space has already been sold to manufacturers of appliances. Among the many attractions that will be part of Electra City is a planned clinic to answer any consumer questions ranging from "adequate wiring to how to make zabaglione."

### Sayre Discusses Future Of Gas, Electric Ranges

The electrical industry's claim for approaching parity in range sales is well founded, according to Judson S. Sayre, chairman of the board of the Norge Div., Borg-Warner Corp.

Speaking at a meeting of the Southern Gas Association in Galveston, Texas, he said, "In the past 10 years, total gas range sales were 22,264,000 versus total electric range sales of 14,474,500." These figures represent an advantage of only one-and-one-half-to-one for gas, he noted.

"The stark reality, which seems inescapable, is simply that the gas industry has been losing its share of the range

market, despite the apparent progress which has been made by recent industry programs, product improvements and substantial national advertising."

After quoting sales forecasts and production figures, he closed by saying, "Now, in examining the statements of the two different spokesmen for the electrical industry, we find that one bemoans the fact that electric ranges have only achieved 33 percent saturation while the other boasts the fact that they are gaining to the point where they will achieve parity, as indeed they may, if the gas industry doesn't bestir itself and capitalize on its established proprietary advantages in existing homes as well as the opportunities in new construction."

### Kelvinator Phone Quiz

Some 1,000 Kelvinator dealer-salesmen are participating in a phone quiz in connection with the company's spring promotion contest. The calls, made by Miss Phone Quiz, began April 25 and will be made every other week through June.

Salesmen are asked to name the "Big Plus" feature in one of Kelvinator's ten appliances. A right answer wins each salesman \$10. In addition, retail salesmen will have the chance to win up to \$250 in the consumer phone quiz which runs concurrently during the "Big Plus" promotion.

### Kelvinator's Miss Phone Quiz



### Engineers Meet at Lennox

A series of engineer meetings in Midwest cities was recently conducted by Lennox Industries, Inc., Marshalltown, Iowa. The meetings were planned for consulting engineers, plant engineers, plant managers and others in the field of design and application of large capacity space heating equipment.

Up to fifty engineers attended each meeting. The cities involved were Denver, Kansas City, Wichita, Milwaukee, Des Moines, Minneapolis, Fargo, Omaha and Rockford.

### Whirlpool Sets Up Division For Commercial Laundry

The Special Products Div. of Whirlpool Corp. has been expanded to include a Commercial Laundry and Dry-cleaner Div.



CROUSE

John M. Crouse, former general sales manager for the RCA Whirlpool sales department, has been appointed general manager of the new division and will have overall responsibility for the manufacture, distribution, promotion,

advertising and selling of the company's coin-operated washer, dry cleaning machines, washer-extractors, and other commercial equipment used in fabric conditioning.

### Manufacturers Report First-Quarter Earnings

Sales and earnings figures for the first quarter of 1960, reported by the following manufacturers, generally indicate continued growth of the appliance and metal products industry.

**The Maytag Co.** — All-time record highs in sales and earnings for a first quarter were established, as both sales and earnings showed a two percent gain over the first quarter of 1959.

Net sales of \$32,363,908 in the first quarter of 1960 also represent an all-time high in sales for any quarter in company history. First-quarter earnings were \$3,327,162, representing \$1.02 a common share on 3,273,664 shares outstanding, compared to \$3,255,746 in the 1959 first quarter, equal to 98 cents a share on 3,246,722 shares, after adjustment for last year's stock split.

**Landers, Frary & Clark** — At a recent annual stockholders' meeting Bret C. Neece, chairman of the board, reported substantial gains in sales for the first quarter of 1960 over the comparable period in 1959.

The company's consolidated sales volume for the first three months of 1960, including the sales of the Dorset-Rex, Inc. subsidiary, were 20 percent higher than the first quarter of 1959.

The stockholders approved an increase in the authorized capital stock of the company by 45,000 shares to a total of 600,000 shares and a change from a \$25 par value to a no par value.

**Westinghouse Electric Corp.** — Net income after taxes increased 35 percent in the first quarter of 1960 over the

to Page 57 →



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The lustrous finish of Crucible stainless reflects steelmaking perfection. But steelmaking to exacting specifications is only the beginning of engineering and warehouse services that are continually available to you. To see how they'll help you enhance your product with stainless steel, just call or write the nearest of the 34 local Crucible service centers.

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**ROSS**

Air Systems

*...Engineered Atmospheres  
for Better Processing*

## **Beer and Beverage Can OVEN-1960 Model**

Installed in late 1959, this conveyorized Ross Oven is in full production baking the inner linings of beer and beverage cans at the rate of 1000 cans per minute.

One of several basic types, this particular automatic unit was designed to fit the special production needs of Continental Can Company at one of its modern plants. Over the years, Ross Engineers have designed and installed over 100 beer and beverage can baking ovens in the major can manufacturing plants throughout the United States. Many of the earlier units are still in full and, in many cases, excess production, implying both sound design engineering and sturdiness of construction.



**J.O. ROSS ENGINEERING**

*A Division of Midland-Ross Corporation/730 Third Ave., New York 17, New York*  
ATLANTA • BOSTON • DETROIT • LOS ANGELES • SEATTLE • MT. PROSPECT, ILL.

## Industry news

→ from Page 53

corresponding period a year ago. Net income equal to 55 cents a common share was the second highest ever reported by the company in a first quarter, being exceeded only in 1954, and compared with earnings equal to 41 cents a common share a year ago. New orders booked in the first quarter increased 20 percent over the first quarter of 1959.

**Whirlpool Corp.**—Despite sharply increased sales competition in the first quarter of 1960, the company will show a moderate increase in total sales while earnings will reflect a modest decline by comparison with the same period of 1959, according to Board Chairman Elisha Gray II.

Before the end of the year, Gray predicted, Whirlpool should benefit from a leveling out of startup costs on the new lines of RCA Whirlpool ranges and gas refrigerators and these appliances should be appreciably closer to a break-even position. Gray added that some of the new appliances manufactured by the company, including dishwashers, room air conditioners and ranges, are enjoying "tremendously expanded unit sales."

**Hupp Corp.**—A 58 percent gain in earnings and a 24 percent sales gain over the first quarter of 1959 were recorded in the quarter ended March 31. Both sales and earnings marked new highs for the first quarter.

Net sales reached \$19,518,000 in the quarter, compared with \$15,771,000 in the comparable period of 1959. Earnings before federal taxes amounted to \$1,044,000 against \$712,000 in the 1959 quarter. All three major areas of the company's operations—air conditioning equipment, heating products and household appliances—showed improvement.

**Admiral Corp.**—Sales in the first quarter are expected to be seven percent higher than last year. President Ross D. Siragusa said that, while the company's television sales from distributors to dealers were 33 percent ahead of the first quarter in 1959, the industry's increase was only 16 percent.

The Admiral president said appliance sales throughout the industry had been below first quarter expectations because dealers overbought during the steel strike and were working off their inventories. He noted the beginning of a second quarter pickup which should continue during the rest of the year.

**Revere Copper and Brass, Inc.**—Net income for the three months ending

March 31 totaled \$2,196,116, equal to 82 cents per share on the 2,676,125 shares of common stock then outstanding. This compares with a net income of \$2,491,375, or 94 cents a share, for the same period of 1959 when there were 2,638,306 shares outstanding, a decrease of 11.8 percent.

The decline was attributed by the two executives to a drop in housing starts, building construction, automobile output and general business activity, which reduced the demand for copper, brass and aluminum products.

### New Facilities Announced By Five Manufacturers

Expansions including new manufacturing, engineering and warehousing facilities have been announced by the following manufacturers.

**Westinghouse Electric Corp.**—A new supply depot which will "help speed products from the factory to the customer with maximum efficiency under a new nationwide distribution system," has been announced by the firm.

The depot, with its 700,000 sq. ft. of area, is a major link in the company's streamlined distribution system that is expected to attain full operation for a wide range of products by 1965. The company expects to reduce inventories by 50 percent and, at the same time, provide prompt delivery to dealers and distributors.

**Husmann Refrigerator Co.**—The New Jersey manufacturing facilities are to be expanded by nearly 50 percent—from 130,000 sq. ft. of manufacturing area to 192,000 sq. ft. This is said to be the largest single unit addition ever made to the productive capacity of the industry.

When the expansion is completed, the New Jersey plant will be in a position to produce substantially the entire line of Husmann products, including refrigerated display cases, display shelving, sectional storage coolers and condensing units.

**Lennox Industries, Inc.**—Construction has started on an approximate 50,000-sq.-ft. addition to the heating and air conditioning plant. The project includes three new buildings. There will also be extensive remodeling of existing buildings. Target date for completion is early 1961.

**General Electric Co.**—An expansion program aimed at boosting production capacity to 1963 demand levels with emphasis on the production of newly-developed products to meet the industry's growing silicone needs is underway in the Silicone Products Dept.

The initial phase of the program is construction of a manufacturing facility for silicone fluids, dispersions, emulsions and specialty products which will add 15,000 sq. ft. to existing facilities. This is the first major construction since completion of a multi-million dollar project two years ago which involved the addition of approximately 45,000 sq. ft. of research and development facilities.

**Raytheon Co.**—The company's Commercial Apparatus and Systems Div. began moving into its new building recently. The single-story, 109,000-sq.-ft. structure houses the division's headquarters, engineering laboratories, and a manufacturing plant.

The manufacturing facilities in the Norwood, Mass., building will be used for assembly of Radarange microwave ovens for restaurants, and microwave components for home electronic ovens marketed by stove manufacturers, and a variety of industrial equipment.

### Appliance Manufacturers Introduce New Products

Electric ovens, water heaters, refrigerators and electric baseboard heaters are some of the new products recently announced by appliance manufacturers.

**Utility Appliance Corp.**—The Mission Appliance subsidiary has announced the introduction of a new line of Gaffers & Sattler appliances, including a built-in electric oven and table top, and water heaters for mobile homes. The oven is patterned after the G & S gas Mark 20 built-in, which is said to be the first 20-inch oven that can be installed in standard cabinets made for conventional 17 or 18-inch ovens.

**Meier Electric Co.**—A new line of electric baseboard heaters are said to combine versatility and safety. The heaters are available in 500, 750 and 1,000-watt densities, identically styled in 42-inch lengths. Each heater has a thermal cutout that automatically cuts the current should the unit overheat. Continuous cycles of automatic overheating and shutting off are avoided by a reset button which must be pushed to put the heater back into operation.

**Sub-Zero Freezer Co.**—Model 1900-R, a free-standing, 18.3-cu.-ft. refrigerator, has been added to the Sub-Zero line of upright free-standing freezers and combination refrigerator-freezers. The new unit features pullout shelves, two pullout crispers, a portable egg basket, a tilting fruit basket, and butter and cheese compartments.

*News continued*



### Roth Buys White-Roth

Roth Corp. has purchased all patents, drawings, inventory, tools and equipment from White-Roth Machine Corp. The newly-formed Roth Corp. will specialize in design fabrication of special equipment and machinery, as well as contract machining.

In addition, the Roth Corp. will manufacture and sell products formerly produced by White-Roth, including special process machinery such as phosphating machines, dry film coaters, sheet loaders and stackers.

### New NEMA Group Meets

The first annual meeting of the newly organized Consumer Products Div. of the National Electrical Manufacturers Association was held June 1-3 at the Edgewater Beach Hotel, Chicago.

The new division is one of eight formed this year in line with NEMA's reorganization plan to streamline and strengthen the association structure. It is composed of product sections whose member companies produce electric ranges, electric water heaters, refrigerators, freezers, dishwashers, room air conditioners, housewares and electric fans. Chairman of the division is H. L. Travis, vice president of sales, Kelvinator Div., American Motors Corp.

### Service Pins Presented at Waste King Conference

Presentation of service awards to 12 members of the Waste King Universal customer service division highlighted the midway mark of the division's recent two-day National Conference in Los Angeles and Chicago.

The conference featured up-to-date technical reports and instruction regarding servicing of all household and commercial appliances marketed jointly by Waste King Corp. and its Chicago subsidiary, Cribben & Sexton Co.

Robert Clark, general service manager, said 15 staff specialists who participated, in turn, will train service agents and other personnel forming a nationwide network of more than 450 franchised agencies and five company-owned operations.

### Housewares Show To Have Record Exhibitor Total

A record 743 exhibitors will make the 33rd National Housewares Exhibit in Atlantic City, July 11-15, the biggest housewares show in history, according to Dolph Zapfel, secretary of the National Housewares Manufacturers Association.

This will be the first time the mid-

year NHMA show has presented more manufacturers' products than the January exhibit in Chicago. Continuing growth of the housewares industry, and the increasing importance of the mid-year exhibit to both manufacturers and buyers, were cited by Zapfel as factors making the coming show the biggest of the NHMA exhibits.

### Mechanical Products Creates Electronic Systems Div.

Mechanical Products, Inc., has announced its entry into the electronics field. As part of its expansion program the company is creating an entirely new division to be known as the Electronic Systems Div.

The new activity will specialize in the development, manufacture and sale of complete microwave systems for communications, television and data transmission. The move is an outgrowth of Mechanical's recent acquisition of Lambda-Pacific Engineering Co., Van Nuys, Calif.

### Beaver Enlarges Facilities

Beaver Industries recently dedicated its plant addition at 1500 W. Adams St., Chicago. According to the company, a new, enlarged area for production line rebuilding of screw machines and other

NICKELOID METALS IN A

*Woman's World*



Part of that happy, gleam in the eyes of a modern homemaker is because of the convenience, the ease, and the pleasant decorative warmth of her kitchen. Along with the soft woods and pleasant colors she revels in the easy-to-maintain gleam of clean bright appliances, housewares, working surfaces and decorative trim. The efficient chromium and the warm copper . . . seen so much about the modern kitchen . . . are most probably stamped or fabricated from one of the versatile galaxy of Nickeloid Metals. There's eye appeal and there's sales appeal in appliances and housewares which utilize Nickeloid Metals. Liked, too, by designers and production engineers. Complete information about Nickeloid Metals and the Nickeloid pre-finished metals method is contained in a special kit, which will be mailed you on request.

**AMERICAN NICKELOID COMPANY**



PERU 11, ILLINOIS

Plants: Peru, Ill. and Walnutport, Pa.

machine tools will give faster and better service to the many users of this type of equipment. A new showroom will display a wide variety of automatic screw machines and various other machine tools.

### Emerson, Day-Brite Merge

Emerson Electric Mfg. Co. and Day-Brite Lighting, Inc., both of St. Louis, Mo., have announced an agreement making Day-Brite a subsidiary of Emerson.

Both companies will retain their identity, management, personnel, products and plants. Day-Brite manufactures lighting fixtures for the commercial and industrial field. It employs about 900 persons in three plants.

### Alger Award to Solinsky

Robert S. Solinsky, board chairman of National Can Corp., is one of eight business and professional men in the nation named to receive the 1960 Horatio Alger Awards.

The Alger awards are given annually by the American Schools and Colleges Association to "Americans whose careers typify the results of individual initiative, hard work, honesty and adherence to traditional ideals."

### Crane Acquires General Air Conditioning Corp.

The fixed assets and inventory of General Air Conditioning Corp., Los Angeles, has been purchased by Crane Co., Chicago, according to Wesley A. Songer, Crane president.

General Air Conditioning manufactures reverse cycle air conditioners, heat pumps, and kitchen equipment, including range-refrigerator-sink combinations.

The company will be operated as a division of Crane's Plumbing-Heating-Air Conditioning Group, which headquarters in Johnstown, Pa.

### Epoxy Finishing System Installed by Tappan

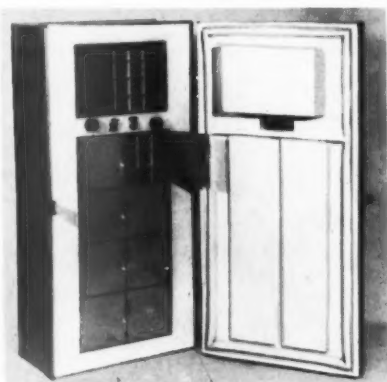
A \$250,000 epoxy finishing system has been installed by the Tappan Co. at its Mansfield, Ohio plant. The new system is part of a nearly-completed two-year, \$3 million expansion program.

Parts to be finished are passed through a seven-stage process of cleaning and conditioning before they are coated in one of a variety of colors. (*Editor's note: Watch for a detailed report of the system in a future issue.*)

### Thermoelectric Refrigerator Used in Space Test

A compact one-cu.-ft. thermoelectric refrigerator, designed and built by the Westinghouse Electric Corp. new products laboratories, was one of the key components of a manned capsule that housed an Air Force scientist on a simulated week-long mission into space. The successful test was conducted by the Air Research and Development Command at their Wright Air Development Div., Aerospace Medical Laboratory, Dayton, Ohio.

Designed to operate in the weightless environment of orbital flight, the refrigerator is a complete food storage



system. It was one of six life-sustaining devices sealed inside an airtight nine-foot capsule resembling an Atlas missile nose cone.

Chris J. Witting, Westinghouse vice president, consumer products, described the thermoelectric refrigerator as the ideal type of unit for applications in space.

"Thermoelectric refrigeration is achieved simply by passing an electric current through the proper kinds of semiconductor materials," he pointed out, "and requires no compressor, refrigerant, or apparatus with moving parts. To achieve warming instead of cooling, it is only necessary to reverse the flow of electric current by flipping a switch.

"Being a solid-state device, a thermoelectric refrigerator would not have its performance impaired by zero gravity, high acceleration, or other conditions imposed by space travel.

### Gas Vent Institute Moves

The offices of the Gas Vent Institute have been moved to 333 N. Michigan Ave., Chicago 1, Ill. The announcement was made by Smith, Bucklin & Associates, Inc., an institute management firm.

### Obituaries

#### Elmer W. Dany

Elmer W. Dany, vice president of Ferro Corp.'s Furnace Engineering Div., died March 29 after a year of failing health. An authority on the design of porcelain enameling plants and equipment, he was responsible for many of the largest such installations in the world. He joined Ferro in 1925 following graduation from the University of Alabama, and was made vice president in 1946.

#### William C. Bruckman

William C. Bruckman, 50, chief engineer of O'Keefe & Merritt Co., died April 26 in Whittier, Calif. Bruckman began his industrial career with Westinghouse Electric Corp. in Mansfield, Ohio in 1933. He was associated with and responsible for the development of many home laundry appliances in use today. From 1955 to 1957, he was director of engineering at the St. Joseph Div. of the Whirlpool Corp.

#### William M. Buttriss

William M. Buttriss, director of advertising and sales promotion for Tinnerman Products, Inc., died in Cleveland's Fairview Park Hospital April 4. He was 52. Widely known in the fastening industry and in the advertising profession, Buttriss joined Tinnerman in 1934. He was named director of advertising and sales promotion in 1947. He was also a member of the company's board of directors.

### Sperry Rand Buys New Division

Sale by the Clary Corp. of its Adding Machine and Cash Register Div. assets to the Sperry Rand Corp., Remington Rand Div., was recently announced by the two companies. The sale, which is subject to final approval of the definitive contract by Clary stockholders and the Sperry Rand Corp. board of directors, will be for a cash amount of approximately \$8,050,000 and will become effective on July 1.

The transaction will add a line of full keyboard adding machines, and a line of manual and electric cash registers which were not formerly in the Remington Rand product line. Included in the sale will be all physical assets of Clary's manufacturing plant in Searcy, Arkansas.

### Two Firms Announce Recent Acquisitions

Westprest, Inc., a custom stamping plant, has been established as a subsidiary

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## personals

**Raymond H. Coin**, formerly president of **Ingram-Richardson, Inc.**, was elected chairman of the board at a recent board meeting. Other officers elected at the meeting include **Morton J. Keedy**, president; **C. Robert Wainscott**, executive vice president; **F. W. Clark Hutchison**, vice president, research and product development; and **J. Tom Hewlett**, vice president, frit sales and service. Coin continues as chief executive officer.

**Whirlpool Corp.** has announced the promotion of several **RCA Whirlpool** sales executives. **Harper R. Dowell**, former distribution manager, becomes general manager of distribution and sales. **Thomas F. Bartley**, former field sales manager, becomes the new general sales manager. **C. R. Armstrong**, who formerly served as general manager of the Detroit Sales Division, has been named general manager of branches. **C. Edward Reiner** takes over Armstrong's former position. **Raymond A. Muldoon**, national advertising manager since 1958, becomes sales manager of automatic washers. **Quentin B. Garman**, refrigeration division sales promotion manager, has been named national advertising manager, and **Ronald I. Gow** has been promoted from the Atlanta branch to assistant national advertising manager.

**C. Wayne Hendrix** has been appointed chief engineer in charge of product development for **Chambers Mfg. Co.**, a division of **Chambers Corp.** He will be located in Chambers' Oxford, Miss., plant to supervise engineering, design, and development of Chambers' built-in appliances.

**J. K. Storkman** has been appointed to serve as manager of the New York sales office of **American Nickeloid Co.** Storkman has been associated with the firm for 19 years.

**Robert P. Ingols** has joined the **Designers Metal Div., North American Cement Corp.**, as vice president of sales. He will direct all sales and marketing activities of Designers Metal in their manufacture of expanded metals and expanded metal products.

**Thomas M. Isaacs** has been appointed director of advertising and sales promotion for the **Robertshaw-Fulton Controls Co.** He will have his office at the firm's headquarters in Richmond, Va.

**Arthur Hauser**, who was manager of the New York branch of **National Rectifiers, Inc.**, from 1950 to 1956, has recently rejoined the firm as general sales manager. Hauser's duties include the reorganization of the company's national sales and service structure and market testing and marketing plans for currency handling equipment.

**John R. Caulk, Jr.** has been elected president of the **Husmann Refrigerator Co.** Caulk joined Husmann in 1937 and has served in various management capacities. He was elected vice president in charge of engineering in 1953 and vice president in charge of manufacturing in 1955. He was elected executive vice president in 1956.

**Joseph H. Duff** has been promoted from assistant technical manager to technical manager of **Graver Water Conditioning Co.** He succeeds **Marvin Lane**, who was recently appointed general manager of the company.

**C. V. Hill & Co., Inc.**, has announced two additions to its management staff. **George Estes** has been named director of engineering manufacturing, and **Donald Rutishauser** has been appointed director of engineering.

**Caloric Appliance Corp.** has announced two executive appointments in its **Architectural Porcelain Enamel Div.** **Thomas A. Milqueen** has been promoted to the position of assistant sales manager, and **Frank B. Gibson** moves up to the post of division manager.

**Daniel Coffey** has been promoted to supervisor of data processing systems and control, and **Max Buckley** has been named supervisor of operations in a realignment of **The Maytag Co.**'s data processing department.

**Harry T. Silverman** has been elected board chairman of **Landers, Frary & Clark**. He succeeds **Bret C. Neece**, who recently announced his retirement from active industrial management. Silverman was also re-elected president of the corporation and will continue to serve as the chief executive officer.

**Paul R. Watters** is the new salesman for the **Richmond Plumbing Fixtures Div., Rheem Mfg. Co.** He will cover territory in the vicinity of Houston, Texas, working under the direction of the Texas sales office in Fort Worth.

**Frank O. Maltby** has been appointed manager of special market sales for the **General Electric Co.**'s television receiver department. He joined GE in 1935.

**Joel M. Kibbee** has been named manager of customer educational services of the **Remington Rand Univac Div., Sperry Rand Corp.**

**Edward F. Rau** and **Gerald A. Beebe** have been appointed Roll-Bond sales engineers in the **Metals Division** of **Olin Mathieson Chemical Corp.**, it has been announced by **U. R. Jaeger**, sales manager.

**William T. Collins** has been elected assistant secretary of **Michigan Chrome and Chemical Co.** He has been employed in the accounting department of Michigan Chrome since 1950.

**Wallace Denhoff** has been named manager of the **Pump Div., Binks Mfg. Co.** His primary job will be sales, but he will also be in charge of engineering and administration of the department. He will operate from the firm's Chicago office.

**Alan G. Caterson** has been appointed technical editor in **Crucible Steel Company's** newly-created Information Serv-

HENDRIX



DOWELL



BARTLEY



ARMSTRONG



ISAACS



INGOLS





ice Department. He will be responsible for the distribution of information to the press and public in the areas of commercial, production, technical and financial activities, and will serve as contact for the national business and technical press, radio, and television in these areas.

**Frank A. Gall** has been named Illinois district manager by **Macco Products Co.** He will cover all of Illinois with the exception of the Chicago metropolitan area and the Tri Cities.

**Paul S. Gruber** has been named manager and chief engineer of **Ferro Corp.'s** Furnace Engineering Div. He was formerly assistant chief engineer. Also promoted were **John A. Dvorak**, who was made assistant chief engineer, and **Robert S. Hlivak**, who moved up to Dvorak's post as chief draftsman.

**R. H. Smith**, secretary of **The Reliance Electric & Engineering Co.**, has been appointed chairman of the public relations committee of the National Electrical Manufacturers Association.

**Laurence J. Kabins** has been appointed director of advertising and sales promotion of the **John Oster Mfg. Co.** He will be responsible for advertising and sales in all divisions.

**Thomas S. Nichols** has been elected chairman of the board of **Olin Mathieson Chemical Corp.**, and **Stanley de J. Osborne** has been elected president and chief executive officer.

**Sharon Steel Corp.** has named two new vice presidents — **Henry G. Evans** and **Robert N. Merk**. Evans is vice president in charge of production and Merk is vice president in charge of engineering.

**William A. Carter** has been appointed service chief at **Republic Steel Corp.'s** Union Drawn Steel Div. He joined Republic in 1934, and has served as plant accountant since 1950.

**Kenneth J. Boedecker** has been appointed to the newly-created position of manager, aluminum structures market, of the **Reynolds Metals Co.** He joined Reynolds in 1954 as an industrial engineer, and he has been assistant to the general manager of the sheet division since 1958.

**A. J. Zaccardi**, assistant controller of **Air Reduction Co., Inc.**, has been elected controller of the company. He joined Air Reduction in 1925 and served in various capacities in the accounting and auditing departments. The company also announced the election of three new members to the board of directors: **John**

**T. Dorrance, Jr.**, assistant to the president and a director of Campbell Soup Co.; **Richard G. Folsom**, president of **Rennselaer Polytechnic Institute**; and **August J. Thoma**, vice president of Air Reduction.

**Joseph B. Hall**, president of the Kroger Co., and **James C. Donnell, II**, president of the Ohio Oil Co., have been elected directors of **Armco Steel Corp.**

**Melvin D. Verson** has been appointed to the post of president and chief operating officer of Verson Allsteel Press Co., and **Jack Novak**, executive vice president of the firm, has been appointed to the additional position of secretary, it has been announced by David C. Verson, chairman of the board. Melvin Verson has served most recently as vice president, administration. **David Verson** will function as chief executive officer.

NOVAK



VERSON



**William H. Buck** has joined **Raytheon Co.** as advertising and sales promotion manager for the Commercial Apparatus and Systems Division, it has been announced by Fred O'Kelley, division marketing manager.

The **Porcelain Enamel Institute** has announced the staff addition of **Robert S. Thompson**, who has been appointed to the newly-created position of manager of technical activities.

**Edward S. Bulsza** has been promoted to assistant superintendent of plant operations of **Peerless Steel Equipment Co.** He has been associated with Peerless for 11 years in various engineering capacities.

**George F. Rhonehouse**, formerly plant manager of the **Marsco Mfg. Co.**, has been named vice president in charge of manufacturing, research and development.

**Charles F. Adams** has been elected to the newly-created position of chairman of the board of **Raytheon Co.**, and **Richard E. Krafve** has been elected president. Adams has been president of the company since February 1948. Krafve, former vice president of the Ford Motor Co., joined Raytheon in April, 1959 as group vice president.

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# DOC TUFFY

## TO THE RESCUE

**NO-NO-NOT ANOTHER LEAKER!**

**ALL OUR EJECTOR HOLDERS LEAK, DOC! AND I'M NOT MISTREATIN' 'EM—I'M NOT!**

**JOE'S NO PSYCHO, MR. FOREMAN. WHY NOT LET HIM TRY A GOLDCROWN?**

**GOTCHA, DOC! JOE'LL HAVE A GOLDCROWN TOMORRA!**

New Tuffaloy Goldcrown Ejector Holder ends leakage. Seals are protected from shock and grit. One Goldcrown user made 25 million welds without a leaker. Goldcrown man-size ejector head ends sticking. For Goldcrown details write your nearby Airco or Tuffaloy office.

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## UNILOY

STAINLESS STEELS

brighten homes, brighten sales  
with life-long beauty

The gleaming beauty, plus the permanence and ease of cleaning have made stainless steel the wife's delight—and sold many a home.

When made from Uniloy stainless steel, flatware, utensils, and other kitchen accessories have that inviting blend of beauty and permanence so appealing to the modern homemaker.

Uniloy stainless steels—easy to work and form—are rolled to most exacting specifications by steel makers who have been making specialty steels since 1884.

**UNIVERSAL**  
**CYCLOPS**  
STEEL CORPORATION  
EXECUTIVE OFFICES: BRIDGEVILLE, PA.



STAINLESS STEELS • TOOL STEELS • HIGH TEMPERATURE METALS

# METAL PRODUCTS STATISTICS

		1960 (Units)	1959 (Units)	% Change
Gas Furnaces	March	61,500	70,700	-13.0
	Jan.-Mar.	179,500	195,600	-8.2
Gas Boilers	March	9,854	8,269	+19.2
	Jan.-Mar.	25,058	20,673	+21.2
Gas Conversion Burners	March	7,800	6,000	+30.0
	Jan.-Mar.	22,600	18,800	+20.2
Oil-Fired Central Heating Equipment	March	*	38,831	*
	Jan.-Mar.	*	118,539	*
Gas Ranges, Free-Standing	March	143,200	146,300	-2.1
	Jan.-Mar.	389,200	408,700	-4.8
Gas Ranges, Built-In	March	31,300	24,900	+24.9
	Jan.-Mar.	77,200	63,600	+21.4
Gas Water Heaters	March	243,700	265,900	-8.3
	Jan.-Mar.	674,200	791,800	-14.9
Gas Vented Recessed Wall Heaters	March	25,600	32,100	-20.2
	Jan.-Mar.	76,800	95,400	-19.5
Gas Floor Furnaces	March	6,400	6,300	+1.6
	Jan.-Mar.	14,200	17,300	-17.9
Gas Direct Heating Equipment	March	78,100	73,100	+6.8
	Jan.-Mar.	169,500	181,400	-6.6
Gas Unit Heaters & Duct Furnaces	March	14,600	11,900	+22.7
	Jan.-Mar.	41,600	35,300	+17.8
Gas Incinerators	March	4,300	3,800	+13.2
	Jan.-Mar.	12,200	9,400	+29.8
Electric Household Refrigerators	March	338,100	333,700	+1.3
	Jan.-Mar.	907,200	896,100	+1.2
Electric Farm & Home Freezers	March	112,200	121,400	-7.6
	Jan.-Mar.	262,800	290,800	-9.6
Electric Ranges, Free-Standing	March	85,800	102,200	-16.0
	Jan.-Mar.	236,700	267,400	-11.4
Electric Ranges, Built-In	March	70,600	70,400	+0.3
	Jan.-Mar.	176,400	160,600	+9.8
Electric Water Heaters	March	75,100	74,900	+0.2
	Jan.-Mar.	184,300	213,100	-13.5
Electric Dishwashers	March	55,100	43,800	+25.8
	Jan.-Mar.	138,300	119,100	+16.1
Electric Food Waste Disposers	March	71,000	61,600	+15.3
	Jan.-Mar.	179,100	169,100	+5.9
Combination Washer-Dryers	March	18,746	16,207	+14.0
	Jan.-Mar.	49,029	53,715	-9.0
Washers—Automatic & Semi.	March	244,488	248,729	-2.0
	Jan.-Mar.	669,894	701,577	-5.0
Washers—Wringer & All Other	March	63,125	80,939	-22.0
	Jan.-Mar.	175,924	214,408	-18.0
Electric Dryers	March	60,946	68,670	-11.0
	Jan.-Mar.	205,021	216,685	-5.0
Gas Dryers	March	29,529	29,764	-0.7
	Jan.-Mar.	105,154	106,243	-1.0
Vacuum Cleaners	March	339,918	346,557	-1.9
	Jan.-Mar.	892,731	860,469	+3.7
Metal Furniture	March	*	*	+15.0
	Jan.-Mar.	*	*	+5.0
†Television	March			
	Jan.-Mar.			
†Radio (1)	March			
	Jan.-Mar.			
Typewriters	March	93,570		
	Jan.-Mar.	239,019		(a)
Compressor Bodies (2)	Jan.-Dec.		4,926,657	+37.0
Steel Barrels & Drums	February	2,132,035	2,555,376	-16.1
Steel Pails	February	5,124,892	5,476,276	-6.0
Room Air Conditioners	March	203,100		
	Jan.-Mar.	425,100		
Unitary Air Conditioners (3)	Jan.-Dec.		285,935	
Heat Pumps	Jan.-Dec.		35,157	

(1) Including auto receivers

(2) Except for household refrigerators

(3) Including heat pumps

(4) No change

(a) Increase over 1958

\* Not reported

† Output — all other figures are factory shipments or factory sales

Sources for this information: Gas Appliance Manufacturers Association, National Electrical Manufacturers Association, American Home Laundry Manufacturers Association, Vacuum Cleaner Manufacturers Association, National Association of Furniture Manufacturers, Electronic Industries Association, Air-Conditioning and Refrigeration Institute, and U.S. Dept. of Commerce.

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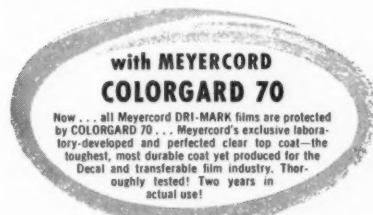


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Whatever your sign needs, you owe it to yourself to investigate Meyercord's complete line of products. Our factory trained representatives will be glad to assist you in the proper selection of markings for any particular requirement. Write today.

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**T**HE LARGEST ATTENDANCE in the history of the Appliance Technical Conference was recorded at the Mansfield-Leland Hotel, Mansfield, Ohio, May 16-17. Sponsored by the Domestic Appliance Sub-Committee of the Domestic and Commercial Applications Committee, American Institute of Electrical Engineers, the 11th annual meeting drew over 325 engineers.

Keynote R. E. Brooker, Whirlpool Corp. president, opened the two-day session with a challenge to engineers in the appliance field to "assume leadership and statesmanship for effecting industry-wide research developments that will benefit all." In his talk, "Innovation —

duction of a continuous parade of product improvements and innovations is our best guarantee of a solid, stable industry, and this should be the aim of each engineering group; the forward planning of the engineering departments should be able to demonstrate the economic benefits to be gained."

The successful engineer, he pointed out, has learned to discriminate between the real innovation as opposed to the gadget — the innovation that brings real value to the consumer against those that cause change without benefit.

As an example of beneficial, progressive changes brought about by the joint efforts of engineering and sales department, Brooker noted that today's refrigerators offer 11 cu. ft. of refrigerated space in the same floor space and cubicle content required for the popular



Keynote Speaker R. E. Brooker, president, Whirlpool Corp., St. Joseph, Mich.

## AIEE Appliance Technical Conference

attendance mark of 325 sets record for engineers' meeting

EXCLUSIVE MPM PHOTOS

The Lifeblood of Engineering," Brooker stressed that engineers, "professionally as engineers, and professionally as merchants," should keep in mind one main reason for innovation — to serve the customer better.

Adherence to this principle, he continued, is not only economically sound, but will also contribute to the stature of the appliance industry and create consumer confidence in new products. Product innovations must have benefits to the consumer that are demonstrable and convincing, he added. "The intro-

5½-cu.-ft. models of 1930. The benefits of this improvement are obvious to the consumer.

"The point is," he added, "by concentrating our efforts on the important, we can, as an industry, produce a constant parade of innovations that will be our life blood and we will not be continuously plagued by model changes without justification."

### Brooker on service

On the subject of appliance service, Brooker said the engineer can help build business and customer satisfaction by "building a product more free of service, with simplified and standardized service techniques." The problem of appliance service is evident when the annual cost of this service is recognized, he said. "The total spent on service of appliances, including traffic appliances, is a staggering 3-3/4 billion dollars a year, or more than \$70 per household.

H. L. Gross, Sears, Roebuck and Co., told an MPM editor that he felt the total appliance service bill, including other allied home products such as lawn mowers, was close to \$5 billion annually, or one percent of the gross national product.

In summarizing this point, Brooker stated that the primary responsibility of the appliance engineer should be "customer confidence through satisfactory product performance."

Brooker urged industry-wide cooperation in the development of new and worthwhile products. He gave several examples of firms that tried to "go it alone" with a revolutionary idea and faltered or failed because "introduction

of a unique product by a single manufacturer is costly, slow and fraught with problems."

Speaking of a current innovation — thermoelectricity — Brooker questioned the wisdom of individual efforts and asked if a coordinated program would speed the development time of a thermoelectric refrigerator. In doing so, he continued, the resulting consumer demand might be such that all cooperating companies could operate at full capacity for a considerable period. He added: "I have the feeling that the leadership for a combined project to develop thermoelectric refrigerators might originate with the engineers. Here is a subject that is beyond the full comprehension of most sales and top management groups — one that can be retarded and harmed by premature and controversial publicity — and with a potential product that would prosper best with full industry support."

He went on to state that the causes for appliance service may be divided into two groups: those controllable at manufacturing level, and those not controllable. From the business point of view, he elaborated, there are two divisions of service separated only by the warranty expiration date. On the "magic" day the warranty expires, interest is replaced by apathy, and vice-versa, as the burden of service cost is shifted. "It is a pleasure to report," he added, "that this concept is rapidly being replaced by a more realistic philosophy in which service is viewed as an opportunity to build an enduring business security through good will."

Gross also touched on the problem of

Speakers' panel for Session I included (from left): K. M. Hammell, AMP, Inc., Harrisburg, Pa.; L. W. Flenner, Thermo-Disc, Inc., Mansfield, Ohio; J. C. Burdett, Westinghouse Electric Corp., Lima, Ohio; L. A. Johnson, Westinghouse Electric Corp., Mansfield, Ohio; and Session Chairman M. A. Fuller, Whirlpool Corp., St. Joseph, Mich.



servicing personnel. He said you cannot expect servicemen to be engineering analysts or writers of detailed technical reports on the appliance defects they encounter. Rather, reports should be standardized and simple. This in turn will aid engineers in connection with future design and production practices.

#### Quality control

Two other speakers in the same session delved into the topic of quality control. "Engineering Audit of Design Quality," by G. W. Schroeder, General Electric Co., concerned the philosophy and procedures involved in evaluating the quality of an engineering design in large scale production, and the distinction between engineering and manufacturing responsibilities for quality.

C. Wood, Whirlpool, discussing "Positive Quality Control," said that the basis for all quality control is customer satisfaction, and that quality control has four broad functions: new design control; incoming material control; product and process control; and special process studies.

#### Service — scope and limitations

An important talk titled "Service — Its Scope and Limitations," was presented at the final session of the conference, at which Dana Chase, MPM editor and publisher, was chairman. The paper was presented by H. L. Gross of Sears, who began his talk with the following definition of service: "Service must be an omnipotent, sometimes diabolical, something that we rely upon to correct all mistakes and satisfy all needs. Our hope that it will always be available but never required, is symbolic of the enigma we call service — appliance service particularly."

#### Contacts and connections

On the more technical side, a paper presented at the first day's morning session covered "Mechanical Problems of Electrical Contacts and Connections." Author L. W. Flenner of Therm-O-Disc, Inc., discussed some of the many ways of joining materials together permanently to form a high-pressure or solid metal joint that is stable electrically and mechanically. Several types of connections were illustrated with slides, along with hints on selecting the proper connection for a given application.

Flenner's talk was followed by a discussion of connector reliability by K. M. Hammell, AMP, Inc. He pointed out that the corporate image itself can be damaged by a slight miscalculation in the reliability of connectors. He estimated that 20 to 35 percent of electrical components are returned for replacement because of faulty terminals.

A representative of a major component manufacturer told MPM that his estimate of this percentage was in the range of 25 to 50 percent.

The advisability of "shopping" to ob-

tain reduced prices on terminals was questioned by Flenner, as he pointed out that 12 cents per unit is the maximum that can be saved by using the lowest-priced terminals. He went on to outline a two-day "stressed accelerated test" to determine the performance of connections.

#### Ultrasonic washing

A report on the disappointing results of tests to learn the feasibility of using ultrasonics to wash clothes was presented by L. A. Johnson of Westinghouse. According to Johnson, the test results indicated that ultrasonic clothes washing did not give a high quality wash, is not effective at lowered temperatures, and that this method still requires detergents, hot water, and some form of agitation.

In summing up, he said that ultrasonic clothes washing "is not yet ready to revolutionize the home laundry industry."

#### Chapman on product changes

The second day's program was sparked by a luncheon address by B. A. Chapman, executive vice president and general manager of Kelvinator. He discussed "Product Changes by the Calendar — Pros and Cons." He expressed the opinion that change for change's sake is wasteful and illogical, and that the introduction of new models should be preceded by definite, demonstrable improvements.

Included on the program was a tour of five local plants: Dominion Electric Co.; Stevens Mfg. Co.; Tappan Co.; Thermo-O-Disc, Inc.; and Westinghouse Electric Corp.

Other topics covered included "Application of Motors to Major Appliances," by J. C. Burdett, Westinghouse; "Immersible Coffee Maker," by D. B. Price, Westinghouse; "Calibration and Quality Control Testing of Thermostats," by W. C. Stevens, Jr., Stevens Mfg. Co.; "Centrifugal Pumps for Appliances," by V. K. Steidley, Gorman-Rupp Industries, Inc.; "The Proportional Control — a Timerless Dryer Control System," by N. Fuqua, Therm-O-Disc, Inc.; "Refrigerator Control Systems," by J. Lieberman, Ranco, Inc.; "Magnetic Door Closures for Refrigerators and Freezers," by F. L. Bootes and J. B. Horvay, General Electric Co.; "Combining Microwave and Infrared Cooking in a Single Oven," by S. C. Johnson, Westinghouse; "A Plug-Out Surface Cooking Unit," by G. E. Price, Westinghouse; "An Automatic Surface Unit Control for Electric Ranges," by C. J. Holtkamp, Westinghouse; "Thermoplastics in Appliance Design," by G. Thayer, Dow Chemical Co.; "The Flow Molding of Vinyl Plastics," by C. H. McFarland, The Scott and Fetzer Co.; and "A Hard Coating Process for Aluminum," by J. J. Snegoski, Toro Mfg. Corp.



Speakers' panel for Session II included (from left — front row): D. B. Price, Westinghouse Electric Corp., Mansfield, Ohio; J. Lieberman, Ranco, Inc., Columbus, Ohio; C. J. Holtkamp, Westinghouse Electric Corp., Mansfield, Ohio; and J. B. Horvay, General Electric Co., Louisville, Ky. (From left — back row): V. K. Steidley, Gorman-Rupp Industries, Inc., Bellville, Ohio; S. C. Johnson, Westinghouse Electric Corp., Mansfield, Ohio; W. C. Stevens, Jr., Stevens Mfg. Co., Mansfield, Ohio; and G. E. Price, Westinghouse Electric Corp., Mansfield.



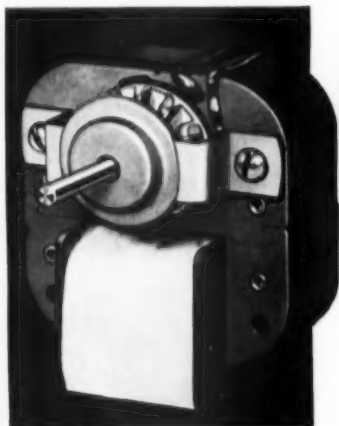
Speakers for Sessions III and IV included (from left): E. O. Morton, Westinghouse Electric Corp., Mansfield, chairman — plant tours; N. Fuqua, Therm-O-Disc, Inc., Mansfield; G. W. Schroeder, General Electric Corp., Louisville; W. R. Milby, Detroit-Edison Co., chairman, Session IV; H. L. Gross, Sears, Roebuck and Co., Chicago; and Dana Chase, Metal Products Manufacturing, chairman, session V.

EXCLUSIVE MPM PHOTOS

(Below) — Out-of-state visitors at the conference included (from left — front row): Stanley Pollard, Ranco, Ltd., London, England; Michael M. Nagata, Canadian Standards Assn., Toronto, Ontario; J. Bradley, General Steel Wares, Toronto; and Ron Taylor, Beatty Bros., Ltd., Fergus, Ontario. (From left — second row): M. Polansky, Canadian Standards Assn.; W. J. Mosley, General Steel Wares; G. H. Sprentall and R. H. Smith, Canadian Standards; J. Richardson, Canadian General Electric, Barrie, Ontario; John Campbell, Beatty Bros.



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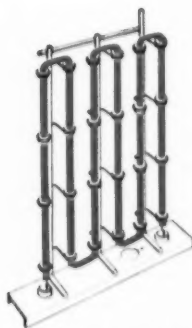
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**Personals**

→ from Page 61

commercial. He was elected executive vice president and a director last September.

**Ernest W. Lenk** has been appointed assistant to the president of **REF Mfg. Corp.** Trained as an industrial engineer, he has been a private consultant to the aircraft industry.

**Richard von Munkwitz** has joined **Mueller Climatrol** as national account sales supervisor. He will be responsible for contacts in the government housing field and with buyers of heating and air conditioning equipment who have nationwide operations.

**Philip E. Neff** has been named assistant to the president of **The O. Hommel Co.** He will assist President Ernest M. Hommel in the administration of plant and promotional sales activities.

**Howard A. Davis** has been elected president of **Ardmore Products, Inc.**, a subsidiary of **The Berry Steel Corp.** He moves up from vice president, sales, a position he had held since 1955. In another appointment, **Edwin M. Shaw** becomes sales manager of the firm.



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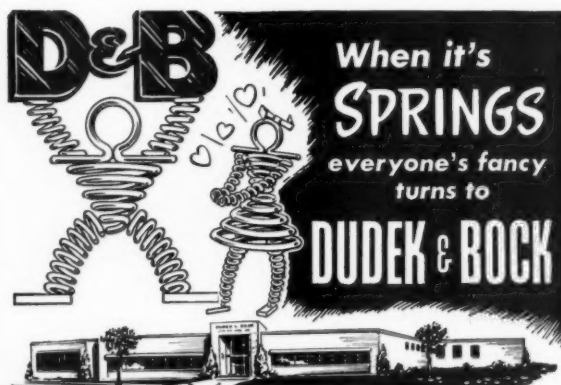
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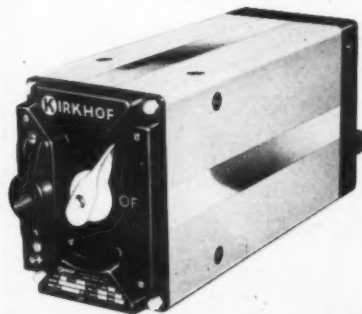
4014 West Grand Avenue, Chicago 51, Illinois

# MPM

**new supplies  
and equipment**

## Epoxy-insulated Welding Transformers

A complete line of epoxy-insulated welding transformers with ratings of 60, 70, 90 and 130 KVA has been announced. Although thermal capacities of the four basic models based on



the previous standard temperature rise of 85° C. are 50, 60, 70 and 100 KVA respectively, the epoxy insulation of the Epoxy-Pak units makes a 110° C. rise completely safe and practical for high production welding, according to the manufacturer.

For further information, contact Dept. MPM, Kirkhof Mfg. Corp., 2450 Buchanan Ave., S. W., Grand Rapids 7, Mich.

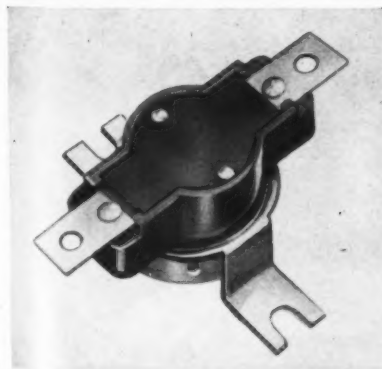
## Special Line of Strippers

A special line of strippers for new acrylic and epoxy paints has been announced which, the manufacturer states, incorporates a special formulae for fast stripping. It is said that the product is designed to accelerate the process of paint stripping to stopwatch speed.

For further information, contact Dept. MPM, Detrex Chemical Industries, Inc., P. O. Box 501, Detroit 32, Mich.

## Snap-Acting Thermostat

Development of a 3/4-inch disc-type thermostat for positive, snap-action temperature control in air conditioning, heating, and ventilating equipment, dryers, and combination washer-



dryers, unit heaters, and countertop appliances has been announced. The thermostats, designated the Klixon 206 Series, are actuated by a snap-acting disc, and do not have the "hunting action" characteristic of creep-type controls.

For further information, contact Dept. MPM, Spencer Products Groups, Texas Instruments, Inc., Metals & Controls Div., Versailles, Ky.

## Aluminum Cleaner and Phosphatizer

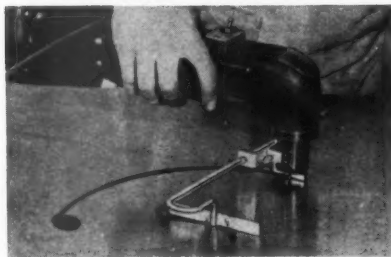
Alfos, a dual purpose cleaner, brightener, and phosphatizer for aluminum and its alloys, is now available. It is a powdered, easy-to-handle acid compound, and is used as a solution containing 4-8 ounces mixed with a gallon of water. This solution can be handled in steel tanks, and the heat necessary to raise it to the using temperature of 180°-200° F. can be supplied through steel steam coils.

Variation in the immersion time for the aluminum or alloy produces either a clean, bright surface, or one which provides an excellent paint base, according to the manufacturer.

For further information, contact Dept. MPM, Clarkson Laboratories, Inc., 930 Darien St., Philadelphia 23, Pa.

## Nibbler Cuts Flat or Corrugated Metal

A nibbler employing a fast, die-and-punch cutting action cuts steel, stainless steel, copper, brass, aluminum, either flat or corrugated, with-



out distortion to the surface. Edges are said to be smooth and require no deburring. Pieces of metal which are cut are forced down and away from the operator, preventing injury.

For further information, contact Dept. MPM, Fenway Machine Co., Inc., 3107 N. Broad St., Philadelphia 32, Pa.

## Vacuum Lifter Handles Heavy Sheets

A vacuum lifter, designed to lift and move heavy sheets, sections of refrigerators, ranges, cabinets, and metal furniture, etc., has been introduced. It operates by pressing cups to surface of part to be handled, and releases instantly with a light pull on the valve release lever. Made of aluminum with 4-inch neoprene cups, it has no metal on inside of cups to mar surface of material being handled.

For further information, contact Dept. MPM, Safety Vacuum Lifter Co., 321 Elm St., Trenton 10, N. J.

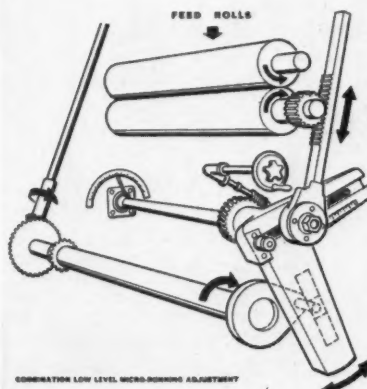
## Portable Indicating Pyrometer

A new version of a portable indicating pyrometer is primarily intended to measure temperatures between minus 40° F. and 200° F. It does this by means of two scales or arcs in order to provide 1° F. per scale division and readability to at least the nearest 1/2° F.

For further information, contact Dept. MPM, Illinois Testing Laboratories, Inc., 420 N. LaSalle St., Chicago 10, Ill.

## Micro-Running Adjustment for Roll Feed

Two types of Micro-Running adjustments, offered as optional equipment, enable the press operator to adjust the lengths of stock fed to the die with a maximum of precision and a minimum

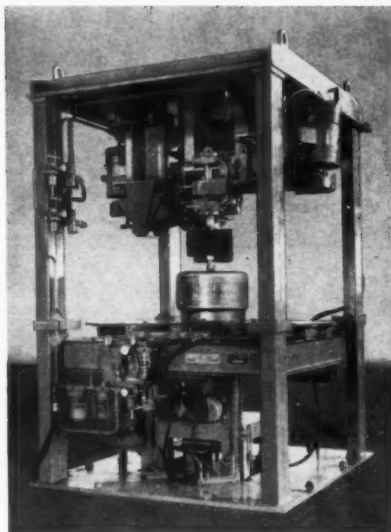


of effort. The standard Micro-Running adjustment is used on feeds for open back inclinable presses, and the Combination Low Level and Micro-Running adjustment is available for use with roll feeds for large straight sided presses.

For further information and Bulletin A-15, contact Dept. MPM, Automation Division, F. J. Littell Machine Co., 4101 N. Ravenswood Ave., Chicago 13, Ill.

## Automatic Deburring Machine

A machine which automatically deburrs holes in such items as automatic washer and dryer baskets in preparation for spray finishing has been recently introduced. Utilizing four wire brush heads, the machine will completely de-



burr a washer or dryer basket in a ten-second cycle. Three operations occur simultaneously. Two of the wire brush heads deburr the holes on the outside of the basket; another wire brush head deburrs the holes in the bottom of the basket, while the fourth brush removes the scale from the inside welded seam which secures the sides to the bottom of the basket.

For further information, contact Dept. MPM, Murray-Way Corp., P. O. Box 180, Birmingham, Mich.



## Industry news

→ from Page 59

diary of Worcester Pressed Steel Co., and Conveyor Systems, Inc. has announced the acquisition of the Farquhar Div., The Oliver Corp.

Westprest, located in Amarillo, Texas, was set up through the acquisition of two adjoining metal fabrication plants: Speedy Mfg. and Sales Corp. and Orna Metal Co.

Farquhar manufactures pre-engineered conveyors for the commercial, industrial and bulk handling fields. The company will operate as the Farquhar Div. of Conveyor Systems, Inc. E. L. Weinthal, vice president and general manager of the parent company, has been elected vice president and general manager of the combined operations.

### Ingersoll Acquires Elgin

Ingersoll Products Div., Borg-Warner Corp., has acquired the Elgin Metal-formers Corp., Elgin, Ill.

Elgin manufactures housings which enclose electronic instruments, communications equipment and related products. The acquisition was a cash transaction.

### National Rejectors In Patent Exhibit

National Rejectors, Inc., is one of 19 companies invited by the Department of Commerce to tell the story of the patent system and its contribution to the economy in the annual Patent Office Mechanical Exhibit, which opened May 10 in Washington, D.C.

NRI, a division of Universal Match Corp., manufactures automatic coin-handling mechanisms, and is the first in its industry to participate in the exhibit.

The exhibit moves to the Franklin Institute in Philadelphia on June 4, and then will be shown in major cities across the country.

In its exhibit, National Rejectors will trace, through documents and actual coin-handling mechanisms, a history of the vending industry. Nine company-held patents will be exhibited.

### Powder Metallurgy Technical Meeting and Trade Show

The Sixteenth Annual Technical Meeting and 1960 Metallurgy Show, sponsored by the Metal Powder Industries

Federation, was held April 25-27 at the Drake Hotel, Chicago.

Latest advances in powder metallurgy applications, materials and equipment were on display by 30 exhibitors, and sessions covering all phases of the industry were held during the three-day meeting. Uses of powdered metal parts were reported growing, with a 13,000 ton output gain reported for 1959, boosting the tonnage to a new record of 34,000 tons.

Parts which are formed from powdered metal range from small gears and castings to larger components for appliances and automobiles. The process involves pressing powdered metal into forms and sintering them to give a final hardness and density.

Reported at the meeting was a new technique called slipcasting. In this method, the powder is poured as a slurry into a mold which absorbs moisture. Fabricators have reported that this method causes shrinkage, but research indicates that it may be the best way of using finer powders.

A Powder Metallurgy Parts Seminar, based on actual case histories, and a motion picture, Principles of Powder Metallurgy, were highlights of the final day of the meeting.

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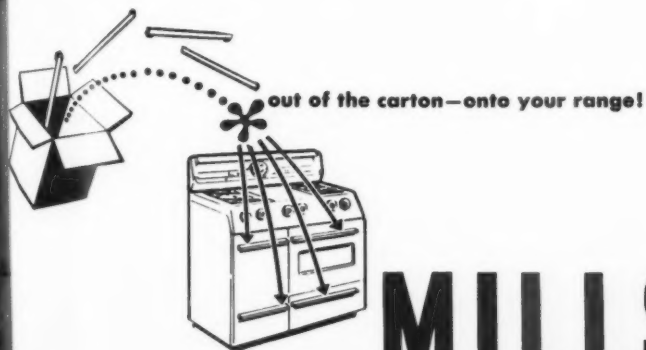
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is a Mills customer of long standing. The Dixie range shown at the right is equipped with PERMA-GRIP door handles. It is also equipped with the universally accepted PERMA-VIEW oven door window, another engineered product of Mills Products, Inc.



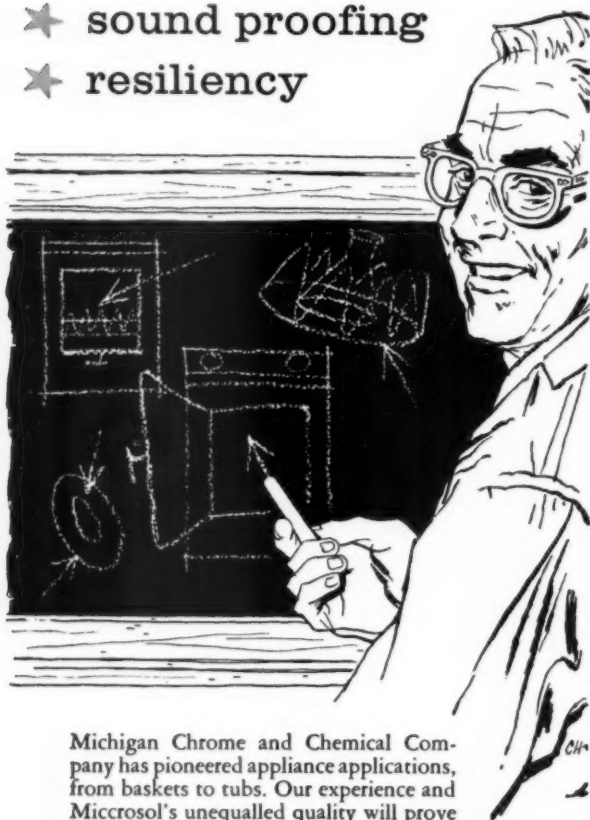
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## MPM

new industrial literature

### Molykote G Lubricant

A four-page bulletin describing the industrial applications of Molykote Type G, a grease-consistency lubricant, has recently been made available. The bulletin discusses how the lubricant reduces galling, siezing and metal pickup in high pressure and high temperature applications. Typical uses discussed include machine wear-in, fretting, threaded connections, highly loaded gears, cold metal forming and press fitting. Instructions for applying the lubricant are also presented. Write Dept. MPM, Alpha-Molykote Corp., 65 Harvard Ave., Stamford, Conn.

### Applications Bulletin

An eight-page bulletin describes a line of heat processing and air conditioning equipment and typical applications. Included in the coverage are ovens, dryers, parts washers, complete paint finishing systems, coating machines, and related equipment. Photos of typical installations are also presented. Write Dept. MPM, Drying Systems Co., 1800 Foster Ave., Chicago 40, Ill.

### Custom Oven Bulletin

Bulletin ID 300 describes a line of ovens including batch or continuous, straight-pass or multi-pass, floor, overhead or tower, single-zone or multi-zone, one oven or a complete finishing line. Write Dept. MPM, J. O. Ross Engineering, 730 Third Ave., New York 17, N. Y.

### Flexible Magnetic Strip

A brochure describing Koroseal magnetic strip, which works like a normal magnet, but is said to be more permanent and much lighter than conventional magnets, has recently been issued. The Koroseal material can be magnetized in any direction along the entire strip, and is available in continuous lengths in an unlimited number of shapes. Write Dept. M-843, B. F. Goodrich Industrial Products Co., Akron 18, Ohio.

### Metal Products Facilities

Facilities for producing products in magnesium, aluminum and other metals are described in a new brochure. Write Dept. MPM, The Dow Metal Products Co., Hopkins Building, Midland, Mich.

### Direct-On Sheet Steel

A new steel for direct-on porcelain enameling is described in a recently-issued brochure. Called Bethamel, the new steel sheet has a carbon content of only .003 percent, and can reportedly be twisted 180 degrees without damage to the enamel. Write Dept. MPM, Room 1041, Bethlehem Steel Co., Bethlehem, Pa.

### Fastener Stock List

A handy stock list shows the current variety of fasteners ready for delivery in large or small quantities. The company maintains a stock of 1,500,000,000 fasteners in a wide variety of items sizes, materials, head styles and finishes. Write Dept. MPM, Southern Screw Co., P. O. Box 1360, Statesville, N. C.

### Polyfax Finishing Process

"The Key to Distinctive Styling" is a bulletin describing the line of Polyfax precision engravings, ground coats, inks and clears for creating finishes of wood grains, leather, fab-



rics, mother-of-pearl or a pattern specified by the customer. Write Dept. MPM, Finishes Div., Interchemical Corp., 224 McWhorter St., Newark 5, N. J.

### Extruded Shapes

A booklet on extruded shapes is intended to serve as a guide for industrial designers and metallurgical engineers. Titled "Harper Extruded Shapes — a New Concept," the 16-page booklet contains a wide variety of photographs, information and schematic drawings describing some unusual aspects of extruding steel and stainless steel. Write Dept. MPM, The H. M. Harper Co., 8200 Lehigh Ave., Morton Grove, Ill.

### High Speed Sheet Metal Lines

Bulletin G-10 points up the operational advantages of the company's high-speed sheeting line. The bulletin enables the reader to follow the progress of a section of stock through the sheeting line's various steps from the spindle reel to the prime and reject stacks of blanks.

According to the company, the line handles steel stock as thick as .020 inch as well as .0055-inch "skinny tinplate." The 12-page bulletin individually describes the 10-ton capacity spindle reel, the straightener, the electronic inspection unit, the roll feed and cutoff machine, the automatic prime and the reject stackers. Write Automation Div., Dept. MPM, F. J. Littell Machine Co., 4101 Ravenswood Ave., Chicago 13, Ill.

### Porcelain Color Guide

A technical bulletin 1-A-FC has been prepared to aid porcelain enamellers in obtaining matches to all colors illustrated in the Porcelain Enamel Institute's Color Guide for Architectural Porcelain Enamel. The formulas given conform to proposed weather resistance specifications, color stability and controllable gloss. A tabulation of frits and primary coloring oxides required to produce these shades is included. Another bulletin (1-V-FC) gives mill additions and a similar tabulation of frits and oxides for the new fruit glacé colors. Write Dept. MPM, The O. Hommel Co., P. O. Box 475, Pittsburgh 30, Pa.

### Custom Fabrication

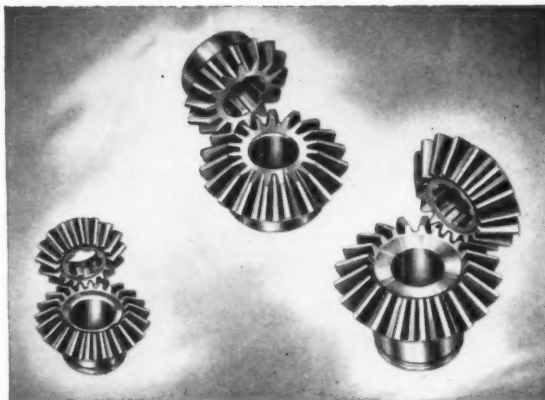
A six-page brochure titled "Ellisco Facilities for Custom Fabrication of Metals," describes the company's facilities for custom production of light metal stampings, sheet metal specialties and welded or soldered assemblies. The brochure also covers the firm's facilities for die production, testing painting, and screening, as well as special customer services such as product design and development, furnishing prototypes, samples and experimental models. To obtain Bulletin 150, write Dept. MPM, George D. Ellis & Sons, Inc., American & Luzerne Streets, Philadelphia 40, Pa.

### Heat Exchanger Catalog

A new, durable three-ring heat exchanger catalog binder, containing 102 pages, comprising 13 separate 8½ by 11-inch bulletins describing Ross shell and tube heat exchangers, is now available. The information is designed to help in selecting and specifying heat exchangers. The catalog is broken down into four categories: coolers, heaters, heat exchangers and general data. Write on company letterhead to Dept. MPM, American-Standard Industrial Div., Detroit 32, Mich.

The company is also offering a revised bulletin (B-5529) briefly covering the firm's complete line of products. The 24-page bulletin describes and gives basic ratings for air

to Page 77 →



### Shortest way to better production, smoother product performance: G. S. Bevels

Nobody argues with the old axiom, "Time is Money"—and it's more and more costly to have assembly operations interrupted or slowed down by ill-fitting or defective parts. G.S. customers (whose roster reads like a Blue Book of American industry) don't worry about such problems. They've learned that they can rely on famous G.S. precision manufacturing methods and rigid inspection systems for Small Gearing made right, every time—Gearing which meets demanding specifications, makes assembly smoother, gives efficient performance in product use.

Perhaps you use full-generated and hardened Straight Tooth Bevel Gears cut from alloy steels, like those illustrated (they're used in outboard motors). Perhaps you need Spiral Bevels or Zerols. Whatever your requirements for Bevel Gearing, including Helicals, Internals or other types, G.S. engineering and G.S. quality belong on your production team!



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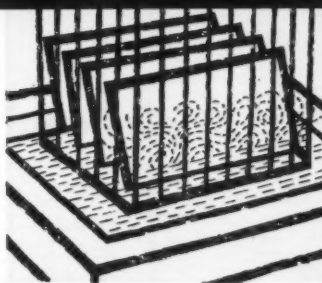
WORLD'S LARGEST EXCLUSIVE MANUFACTURERS  
OF FRACTIONAL HORSEPOWER GEARING

# NEW PRODUCT NEWS FROM *Pfizer* NOW!

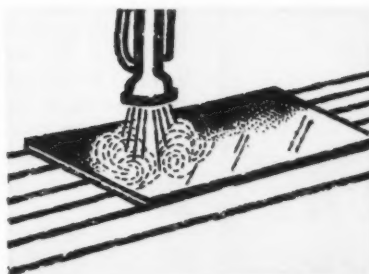
*Manufacturing Chem Over*

Chas. Pfizer & Co., Inc., 630 Flushing Ave., Brooklyn 6, N. Y. Chemical Sales Division, Branch Offices: Clifton, N. J.; Chicago, Ill.; San Francisco, Calif.; V Atlanta,

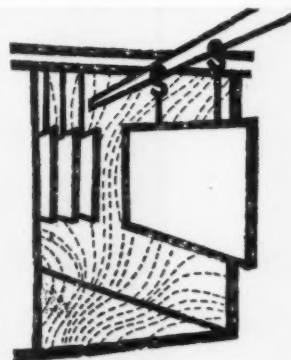
1  
Pickle in  
citric bath



2  
Apply cover  
coat frit directly.



3  
Fire in existing  
equipment.



# PRACTICAL DIRECT-ON PORCELAIN ENAMELING WITH PFIZER CITRIC ACID

It's simple. The secret of really practical *direct-on* porcelain enameling is using a *citric acid* solution as your pickling bath. And *direct-on* porcelain enameling means you can double your oven capacity, cut your handling and obtain a better, more flexible porcelain coating. Bond and finish characteristics are excellent.

In this new Ray-Davis\* process, only cover coat enamel is required. The ground coat step is completely eliminated. Although adequate process controls are needed, no special handling technique or major installation of equipment is required.

Mail in the coupon below for complete technical information on this important new porcelain enameling development.

## Important advantages of the Ray-Davis Direct-On process

- No special handling of pickled steel is required.
- No major installation of special equipment necessary.
- Uses non-premium type steels.
- Easy to handle—citric is a dry, non-toxic, water soluble acid.
- Only one application of frit.
- Doubles oven capacity.

\*Developed by W. G. Ray, Chas. Pfizer & Co. and Shipp C. Davis, Daco Corp.

Over 100 Years



Science for the  
world's well-being

Atlanta, Ga.; Dallas, Tex.; Montreal, Can.

Mail this coupon to:

CHAS. PFIZER & CO., INC. CHEMICAL SALES DIVISION  
630 Flushing Avenue, Brooklyn 6, N. Y.

Please send me: ☐ Technical Information  
☐ Sample of steel porcelainized by Ray-Davis process

Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_





## "SAVE TIME!"

"Save Time!" The Traffic Men said. "O.K.!" said Cooper-Jarrett.

And we did!

Cooper-Jarrett . . . **\*THE TRAFFIC MAN'S LINE** . . . installed a new . . . almost completely automatic . . . and error free system that allows us to get your shipments off hours earlier than usual. How? By saving some three hours on each departure. Hours saved because of no need to wait for billing. It's taken care of by the Cooper-Jarrett teletype and I.B.M. system.

And . . . Cooper-Jarrett, "Maximum Maintenance" of equipment means the time saved at the start gives you faster customer delivery.





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CLEVELAND, OHIO  
PHILADELPHIA, PA.  
JERSEY CITY, N. J.

TRENTON, N. J.  
KANSAS CITY, MO.  
WALLINGFORD, CONN.  
NEW YORK, N. Y.

## Titanium resists corrosion in 4,000-hour service test

**A** 250-GALLON TITANIUM KETTLE has successfully resisted corrosion in a 4,000-hour food preparation service test.

The test was conducted by the H. J. Heinz Co. to determine if titanium would prove to be a feasible material for the food industry where certain very corrosive materials cause pits to develop and perforate stainless steels in a short time.

For over 2,000 hours of the testing, the titanium kettle was subjected to solutions that seriously corrode nickel and Type 316L stainless steel. The kettle was cleaned more than 300 times using various alkaline cleaners or scouring powders. According to the Heinz report, the kettle is still bright and free of any signs of attack and, aside from an evaporation rate slower than similar nickel kettles, has given excellent performance.

Fabrication of the kettle was done at the Hubbert Co. plant in Baltimore. Although there was no information available on deep drawing titanium shapes in the large size required for the kettle, this fabricating technique was chosen.

*Titanium kettle of 250-gallon capacity is shown during fabrication.*

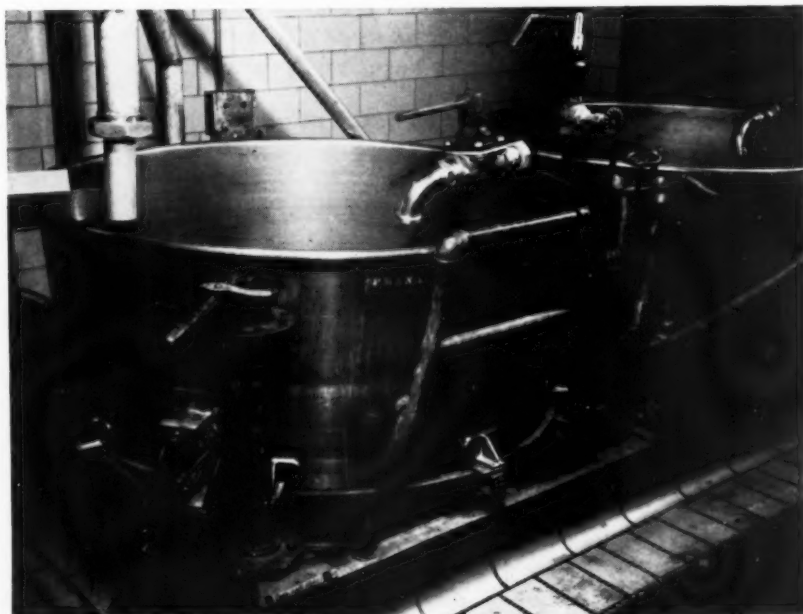
The inner shell of the kettle is the only one that contacts the food being prepared, but the outer shell or steam jacket also had to be made of titanium so that it could be welded to the inner shell. Ductile welds between titanium and other metals are not yet possible.

Inner shell of the 250-gallon kettle is a 45-inch diameter hemisphere drawn from a 0.178-inch thick sheet, and the outer shell is a similar shape formed from a 0.125-inch thick sheet. Blanks for both shells were 66 inches square.



PHOTOS COURTESY REPUBLIC STEEL CORP.

*After over 4,000 hours of testing under various food processing conditions at H. J. Heinz, the titanium kettle emerged corrosion-free.*



conditioning and air handling equipment, fluid drives, heat exchangers, surface condensers, steel boilers and related industrial products. The bulletin may be obtained by writing to the A-S same address.

### Conductor Standards

All metal electrical conductor standards published by the American Society for Testing Materials are contained in a 368-page, hard cover volume published by ASTM. Contained in the book are 59 standards of which three are completely new. Thirty-six are revised or have had their status recently changed. The new standards are for bare aluminum wire for electric conductors, aluminum coated steel core wire, and for testing electrical conductivity by use of eddy current. Copies of the book may be obtained from Dept. MPM, ASTM Headquarters, 1916 Race St., Philadelphia 3, Pa., at \$4.50 each.

### Metal-to-Glass Sealing Alloys

A bulletin describing the properties of three metal-to-glass sealing alloys and one for sealing into vitreous enamel, available in wire or strip, is off the press. One alloy, trademarked Therlo, is vacuum melted, a process which is said to yield a metal of such purity and workability that die life between sharpening is increased 25 to 50 percent. Better drawability and upset are obtained, and fewer rejects in forming and sealing are the result. Write Driver-Harris Co., Harrison 36, N. J.

### Industrial Design Booklet

"A Key Factor in Sales . . . Product Appearance," is a six-page booklet illustrating a design firm's 21 years of consulting industrial design experience with case histories. Each case history includes a photograph of the product, a statement of the design objectives, and how these sales objectives were achieved in the design. Write Dept. MPM, Mast Development Co., Inc., 2212 E. 12th St., Davenport 16, Ia.

### Finishing Reference Chart

A new reference chart for metal finishers lists approximately 50 Kenvert items, including chromate treatments, bright dips, brighteners, plating additives, pickling and cleaning specialists, and protectives. Write Dept. MPM, Conversion Chemical Corp., 98 E. Main St., Rockville, Conn.

MPM JUNE • 1960

## New die forms any angle to 60 degrees

THE MINNEAPOLIS-HONEYWELL Regulator Co. has eliminated almost all die changes on the press brake in their model shop by using a new "roll-form" die. The die is made with two 1/2-inch diameter half-rolls of machined, hardened, and ground rod that pivot in sockets on either side of a bed block. It is made to handle all materials up to 1/4-inch thick and 12 feet in length.

In operation, one 60° male punch forms any angle up to 60° depending upon the depth of penetration, which can be controlled by adjusting the ram or bed of the press brake. This also makes it easy to compensate for spring back when developing a part.

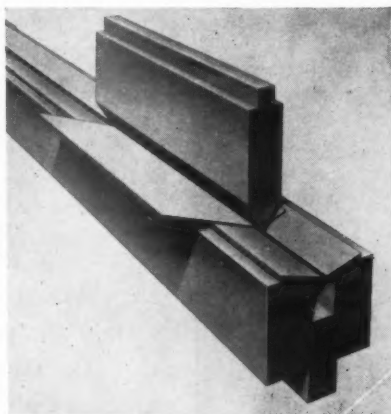
Because the material rests full against the flat surfaces of the half-rolls throughout the forming operations, work marks are eliminated. . . even in painted and many plated materials. For

further information, contact Dept. MPM, O'Neil-Irwin Mfg. Co., 8th Ave., Lake City, Minn.



(Above) — Pivoting half-rolls in the bed block of the new Rol-Form die eliminate press brake die changes for any angle up to 60 degrees in any material up to 1/4 inch thick at Minneapolis-Honeywell.

PHOTOS COURTESY O'NEIL-IRWIN MFG. CO.



(Left) — Section of new Rol-Form die for press brakes. The die is made in lengths from six inches to 12 feet. Just one male punch and the die combination will form any angle up to 60 degrees in metals up to 1/4 inch thick and, in many materials, eliminates work marking.

### Welding Handbook

Publication of the third section of the fourth edition of the *Welding Handbook* has been announced by the American Welding Society. The cloth-bound 512-page volume contains 335 illustrations, 78 tables and a comprehensive index. Special welding and metal joining processes are covered, as well as arc cutting processes. For the first time adhesive bonding and the welding of plastics are included. Ultrasonic welding, one of the newest welding processes to have commercial applications, is also covered. A descriptive leaflet is available free of charge, and copies of Section III may be obtained at a list price of \$9 per volume from Dept. MPM, The American Welding Society, 33 W. 39th St., New York 18, N. Y.

### Storage Equipment

A line of phosphatized steel storage equipment is presented in Bulletin DC-60. The eight-page catalog describes and illustrates angle shelving, T-line shelving, steel lockers, bookcase shelving, steel cabinets, wire basket storage units and service truck shelving. Write Dept. MPM, Penco Div., Alan Wood Steel Co., 200 Brower Ave., Oaks, Pa.

### Washing Machine Valve

A new washing machine valve that is said to provide a full tub despite water pressures which might vary from 5 to 20 psi described in a recently-issued bulletin. Full pressure depresses the flow control washer into a spring-loaded seat, and water passes through the cen-

to Page 80 →



The high quality of  
**NATIONAL LOCK  
 FASTENERS**  
 is more than skin deep

Quality wire is the basic ingredient for quality fasteners. That's why, at National Lock, quality control starts with elements of the raw wire. Here, a unique *spectograph* is used to make a complete qualitative analysis of the metal that goes into National Lock fasteners and cold-headed products. And, too, size, thread dimension, finish and other exacting customer specifications are checked with equal vigilance and thoroughness. National Lock fasteners are quality made inside and out to assure long-term, dependable performance.



STANDARD AND SPECIAL-PURPOSE FASTENERS  
 FOR AMERICAN INDUSTRY SINCE 1909

**NATIONAL LOCK COMPANY**  
 FASTENER DIVISION, ROCKFORD, ILLINOIS

## COMING FEATURES

### GENERAL

SPECIAL SECTION — JULY — THIRD ANNUAL SECTION  
 DEVOTED TO AUTOMATIC MERCHANDISING INDUSTRY  
 (COIN-OPERATED MACHINES)

VOLUME PRODUCTION OF PORTABLE ROOM HEATERS

INVENTORY CONTROL SIMPLIFIED WITH  
 COMPUTER EQUIPMENT

APPLIANCE SERVICE IN CHAMPAIGN-URBANA, ILL.

### DESIGN

DESIGN INNOVATIONS OF NEW STAINLESS COFFEE MAKER

WHAT TO LOOK FOR IN FUTURE APPLIANCE DESIGN

### FABRICATION

FABRICATING ALUMINUM BASE ALLOYS  
 (3-PART FEATURE)

NAMEPLATES WITH FLAME-CUT LETTERING

SLITTING AND SHEARING AT UTILITY APPLIANCE CORP.

FABRICATION AT SPEED QUEEN

### FINISHING

HARVESTORE PRODUCTION AT A. O. SMITH

PRODUCTION FINISHING ALUMINUM SIDING

NEW EPOXY FINISHING LINE FOR STOVE PLANT

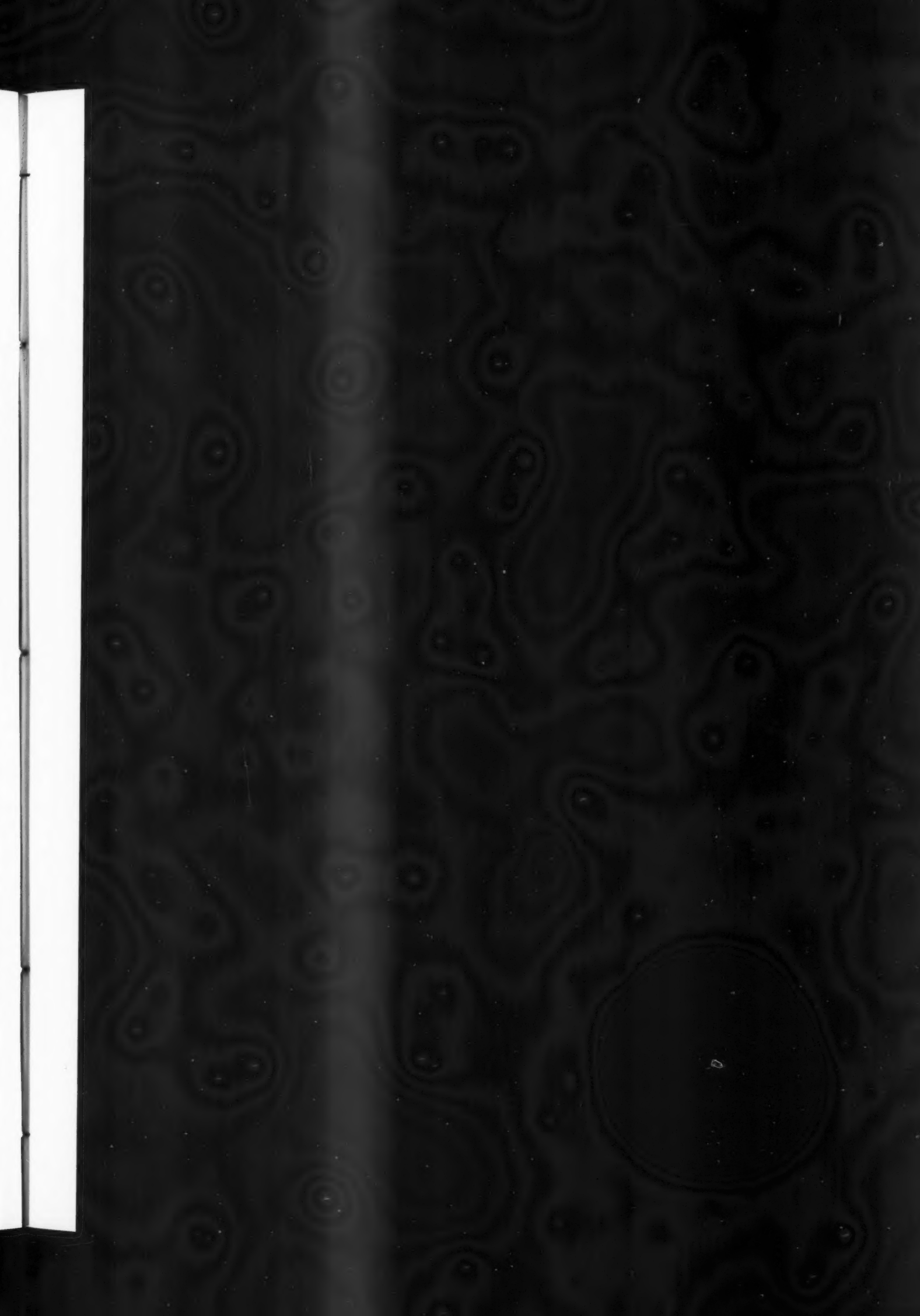
### NEWS

MONTHLY STATISTICAL REVIEW

STAFF EDITORIAL AND PHOTO COVERAGE OF

ALL IMPORTANT INDUSTRY MEETINGS







## NAAMM convention

→ from Page 27

been directed in the area of information — namely, the establishment of the Metal Curtain Wall Manual. He believes that in the future more effort should be placed on communications and public relations.

More specifically, he said that he feels more information is needed on testing procedures, fabrication techniques and original research. He stressed that there should be better communication and, in particular, he feels there is a need for more intercommunication within the divisions of NAAMM. In the area of public relations he feels they should let the industry know of the work that has been done and he strongly recommended the sponsorship of an annual recognition of outstanding metal curtain wall design among architects.

William H. Withey, chairman of the Market Development Committee, reported on the publication and distribution of the Metal Curtain Wall Manual, the inauguration of a publicity-public relations program, and market research that had been conducted. In the area of publicity and public relations, he commented on the number of feature articles that had been published, such as the article "Questions and Answers on Metal Curtain Wall Construction," May, 1960 MPM.

Sid Blumenreich, chairman of the Subcommittee on Market Research, reported that a recent survey showed that the Metal Curtain Wall Manual had been very well received by architects. He recommended five different surveys that he felt should be conducted during the coming year.

Withey concluded the report by recommending that the Metal Curtain Wall Manual be kept up and that there be more and more favorable publicity on metal curtain wall, and that market research be continued. To carry this out, the committee proposed a vastly expanded budget for the coming year.

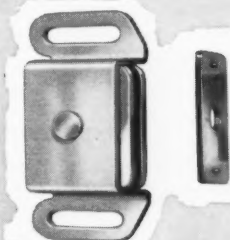
The Metal Curtain Wall Div. unanimously elected the following new officers: president, Neil C. Dostal, vice president, Moynahan Bronze Co.; vice president, Jack A. Mozur, general manager, Architectural Div., The Benson Mfg. Co.; directors, G. H. Smith, vice president, Albro Metal Products Corp.; Louis Toth, Trio Industries, Inc.; Frank A. Austin, vice president, Crown Iron Works Co.; and director ex officio, Ralph L. McKenzie, designer. The Flour City Ornamental Iron Co.

Dostal closed the division meeting by strongly urging that all efforts be made to enlarge the membership of the division, and that a new technical director should be secured for NAAMM.

### New national officers

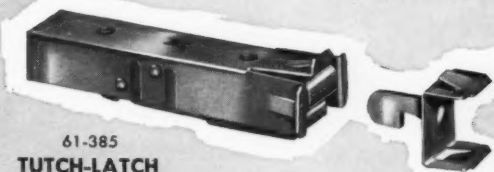
The new officers of NAAMM elected for the year 1960-61 are as follows: president, Jack M. Roehm, vice president, Research & Development, Kawneer Co. The five vice presidents who are also president of their respective divisions are: Mitchel Stern, president, Camden Iron Works; Dr. Norman Bienenfeld, general manager, The Alumiline Corp.; Edward P. Benson, manager of Bronze & Aluminum Div., A. J. Bayer Co.; Karl Jorss, Jr., A. F. Jorss Iron Works, Inc.; and Neil C. Dostal, vice president, Moynahan Bronze Co. Harold S. Langland, Stanley Iron Works, Inc. was named secretary, and Emil M. Pollak, Illinois Bronze Works, Inc. was re-elected treasurer.

## NATIONAL LOCK Functional hardware for metal cabinets



61-675  
**MAGNETIC CATCH**

"Floating action" ceramic type permanent magnet. Aluminum housing resists heat. Elongated holes and extension on housing facilitate use where shelf is recessed.



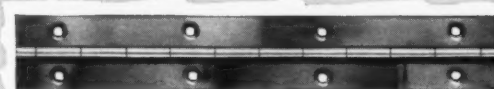
61-385  
**TUTCH-LATCH**

Opens door automatically with gentle touch of hand. Holds door securely when closed. Installation made by "snapping" latch housing into pierced hole in cabinet. Strike has "snap in" application.



58-574A  
**CONCEALED  
SPRING HINGE**

Toggle spring action holds door open at 90° position and securely closed. Eliminates need for catch on applications not requiring positive latching action. Rugged. Easily installed.



**CONTINUOUS HINGES**

Offered with equal and unequal wings . . . with and without holes. Selection of widths (up to 4") and lengths (up to 96"). Finishes range from plain steel to hand-buffed chrome.

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STANDARD AND CUSTOM REFRIGERATOR HARDWARE • PLASTICS  
THERMOPLASTICS • RANGE HARDWARE • SCREWS AND BOLTS

"All from 1 source"



**NATIONAL LOCK COMPANY**  
INDUSTRIAL HARDWARE DIVISION  
ROCKFORD, ILLINOIS



## New literature

→ from Page 77

ter orifice only. Low pressure is not sufficient to seat the flow-control washer and water passes around the washer as well as through the center orifice. For a copy of the bulletin, write Dept. MPM, Detroit Controls, 5900 Trumbull, Detroit 8, Mich.

## Maintenance Cleaning

"Plant Maintenance Cleaning Guide" suggests low-cost methods for plant-wide maintenance cleaning. One of the jobs discussed is cleaning prior to reconditioning dies and tools. Write Dept. MPM, Oakite Products, Inc., 26 Rector St., New York 6, N. Y.

## Magnesium Coating

A dry chromate base salt used in water solution to produce a corrosion-resistant coating on magnesium is fully described in Technical Data Sheet No. 100. Called Macro No. 1, the new product is said to be suitable for a final finish or as a paint base. Coatings vary from tan to bronze, the deeper color having a higher corrosion resistance.

Also, Technical Data Sheet No. 99 describes a leach-type bright chromate for zinc and cadmium. This new prod-

uct is said to eliminate the handling of liquid acid in chromating. To obtain this literature, write Dept. MPM, MacDermid, Inc., Huntingdon Ave., Waterbury 20, Conn.

## Perforated Materials

A general catalog and a stock list brochure describe applications of perforated materials and available contemporary and traditional designs. Also covered is a selection of additional patterns and open areas which can be custom fabricated from existing dies. Write Dept. MPM, Harrington & King Perforating Co., Inc., 5640 Fillmore St., Chicago 44, Ill.

## Resistance Welding Tips

A 24-page catalog on Tuffaloy resistance welding tips, tip holders and alloys has recently been released. According to the company, this is the first resistance welding alloy catalog to utilize the new "RW" taper numbering system for specifying spotwelding tip sizes, as proposed by the Resistance Welding Alloy Association. Shown for the first time are new holders, including straight, offset, close-coupled and universal styles. Write Dept. MPM, Air Reduction Sales Co., 150 E. 42nd St., New York 17, N. Y.

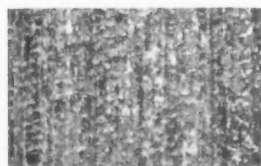
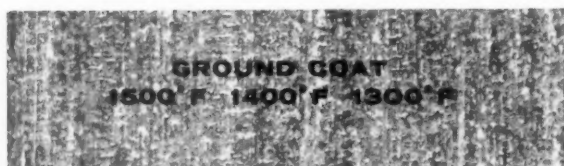
## Explosive Forming

A bulletin on the Explosiform process, a method of shaping metal parts by means of explosive energy, has recently been issued. Included in Technical Bulletin No. 4 is a list of advantages of this fabricating technique. It explains how this method will form, in one operation, complex shapes which ordinarily would require several steps; reduce tooling costs; hold tight tolerances; increase yield strength of the metal; and reduce scrap losses. Write Dept. MPM, Propellux Chemical Div., Chromalloy Corp., Box 187, Edwardsville, Ill.

## Time Switch Bulletin

A recently issued bulletin contains illustrations and line drawings describing a new seven-day time switch. In a section called "To select the proper switch action," detailed drawings show wiring plans for all general applications in lighting, air conditioning and ventilating, and for specific heating control applications. The heating section illustrates both low voltage and line voltage systems, and switching from high to low thermostat for night set-back. For a copy of Bulletin 72, write Dept. MPM, Tork Time Controls, Inc., Mount Vernon, N.Y.

## APEC ...



... growing  
source for  
porcelain  
enamels



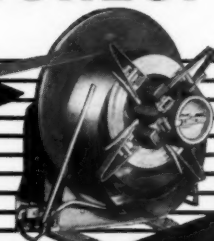
**american porcelain  
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01

## IT FIGURES!

IF YOU USE  
COIL STOCK



THIS IS  
FOR YOU!



**No. 59 LITTELL**

## COIL WEIGHT AND LENGTH CALCULATOR

It's FREE. It figures accurately. Just set it for the I.D., O.D., Width and Thickness of your coil and it instantly tells you the coil's weight and length. Designed for steel coils. Usable for other metals. Write for your calculator now.



SERVING USERS  
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Ask  
for a  
catalog,  
too!




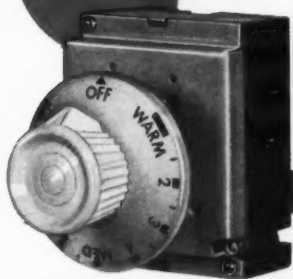
4143 N. RAVENSWOOD AVE., CHICAGO 13, ILL.



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**THE PROCTOR FLASHER INFINITE** wins every heat! Flasher action gets cooking off to a fast start; Infinite control sets a steady, even pace for a smooth, prize winning finish. Housewives love this championship performance. ➡ **PROCTOR** Electric Range Controls eliminate many installation hurdles—there are fewer connections and less wiring. ➡ Be a pace-setter in the electric range sales race. Equip your ranges with blue-ribbon-winning **PROCTOR** Range Controls.  **THE PROCTOR-SILEX CORP.**, Controls Div.  
700 West Tabor Road, Philadelphia 20, Pennsylvania



**PROCTOR**



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Bumps, knocks and squeezes are always a possibility... whenever you ship. The only control you have over product protection is your container.

Wirebound Boxes, Crates and Pallet Boxes provide exceptional protection... under even the toughest handling conditions. There are good reasons for this.

**Engineered to your needs**—Every Wirebound is custom-engineered to your product, shipping and storage requirements. The strength, resiliency and rigidity of all Wirebound components are carefully balanced to provide the maximum protection at the lowest possible tare weight.

**All weather container**—Whether a Wirebound is subjected to the frying sun or a cloudburst... its protective strength remains high... thanks to wood's natural resistance to the elements.

**Built for handling... stacking**—Mechanized handling and Wirebounds go together. Wirebounds stay put on a lift truck... don't slide or tip. They stack straight, high and safely.

Ask your "Man from Wirebound" to show you how products shipped in Wirebounds... "Get there right."

IT GETS THERE RIGHT IN

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BOXES & CRATES

**WIREBOUND BOX  
MANUFACTURERS ASSOCIATION**

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Chicago 6, Illinois

- ☐ Please have the Man from Wirebound call on me  
☐ Please send FREE booklet "What to Expect from Wirebounds"

Name

Title

Company

Address

City  State

### Automatic fabricating

→ from page 43

matically for wear. This technique, according to the firm, has improved efficiency and reduced edge cleaning costs appreciably.

The entire forming and welding line is operated from a single master control panel. Only one operator is required. The control panel is equipped with special monitoring devices including a two-inch oscilloscope with a 10-position selector switch to show the magnitude and wave shape of the voltage and current at ten different test points. This permits localizing trouble to a particular section of the panel. Additional features of the control panel are upslope and downslope controls which aid in controlling the magnitude of the welding current for lap variations on the leading edge of each shell. Also, the controls are equipped with a half-cycle firing device designed to stop the welder and activate an indicator light to signify which of four ignitron tubes is not operating properly. This apparatus eliminates the trial-and-error method of locating the faulty tube.

### Steel drums — 600 per hour

When an MPM editor visited the Inland plant, lithographed 58-gallon, 18-gauge steel drums were being run at a rate of 600 per hour.

Three stacks of sheared sheets are located at the feeding end of the line. The two stacks not being used are positioned behind and to the side of the stack being fed to the line. When the sheets from the stack being fed are exhausted, one of the remaining two stacks is moved into position by a power dolly and production is only briefly interrupted.

The sheared sheets are fed individually into the line by a high-lift vacuum pickup. The high-lift feature eliminates the danger of scratching the lithographed underside of the sheet. The first station is a squaring table, from which the sheet is carried by a chain conveyor to the roll slitter. After passing through the slitter, the sheet edges are cleaned by the abrasive wheels. The sheet proceeds through pinch rolls and then to a transfer table.

The sheet is transferred at a 90° angle to the three-roll forming station, and the formed shell moves on to the mash welder. Knurl-driven weld rolls carry the work through the weld station at a speed of 40 feet per minute.

The top hourglass roller of the mash welder is power driven to give addi-

to page 86 →





## editorial voice of the national safe transit program

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DANA CHASE PUBLICATIONS, INC.

Devoted to improving packaging shipping, and materials handling methods for the appliance and metal products manufacturing industries. This section contains information on plant experience and industry advances for improving packaging and shipping methods, and prevention of in-transit loss. It also contains information on the National Safe Transit Committee's preshipment testing program and reports on NST activities.

### International Paper Ups Faulkner and Turner

Lyn C. Faulkner, former general superintendent, has been named manager of manufacturing for the Container Division of International Paper Co., it has been announced by Arthur B. Damon, division general manager. David E. Turner, assistant general superintendent since 1956, replaces Faulkner as general superintendent.

Faulkner has been with the Container Division since 1941 when it was acquired by International Paper Co. from the Agar Mfg. Co. Turner joined the company in 1937 at its Georgetown, S. C. mill.

### Conveyor Speeds Loading and Unloading

A belt conveyor, equipped with a retractable boom which can be extended into a truck as loads are removed or



withdrawn as packages are stacked forward, has been announced. Called the Olson Telescoveyor, it consists of a stationary base unit and an extendable, self-powered boom whose movement is

easily controlled by only one man unloading or loading at the end. The boom is propelled by an electric motor, and a control bar running the full length of the boom permits instant stopping, forward or reverse movement at the touch of the hand. A "dead man safety device" on the end prevents injury to the stacker or to the parcels.

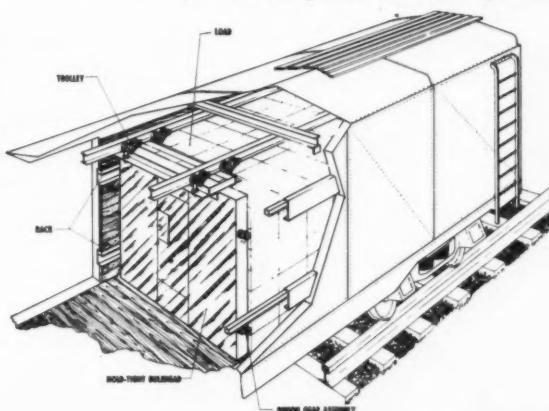
For complete details on the Telescoveyor or other industrial conveyors and systems, contact Samuel Olson Mfg. Co., Div. of Cherry-Burrell Corp., Dept. MP-3, 2418 Bloomingdale Ave., Chicago 47, Ill.

### Hold Tight Bulkhead for Damage-Free Shipping

An adjustable bulkhead device, designed to insure damage-free boxcar shipment of merchandise of all kinds, is being manufactured by Anchor Steel & Conveyor Co., 6906 Kingsley Ave., Dearborn, Mich. Designated the Anchor Hold Tight Bulkhead, the unit is a permanent installation based on a new principle featuring a self-locking geared drive for positively controlled load compression.

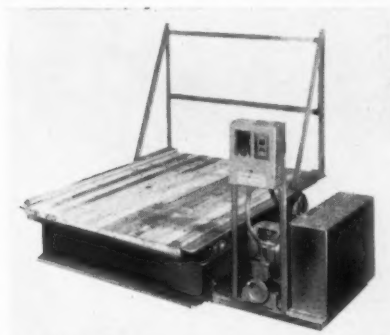
*Cutaway drawing of typical boxcar shows how Anchor Tight Bulkhead, by means of rack-and-pinion drive, compresses load to insure damage-free shipment.*

*"All manufacturing, engineering, and quality efforts are in vain if the product reaches its destination in a damaged condition."*



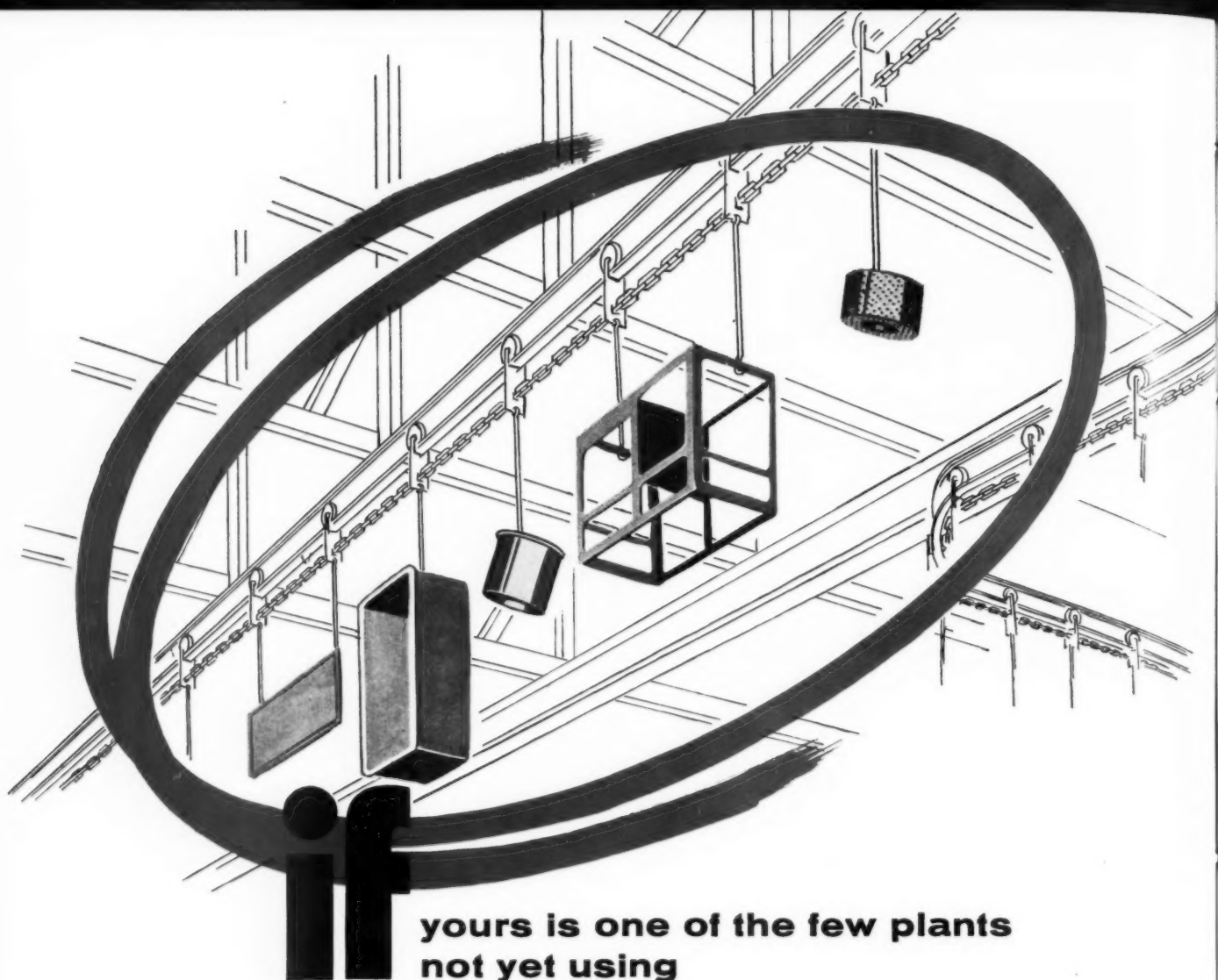
### Compact Vibration Tester

The Gaynes Engineering Co., 1648 W. Fulton St., Chicago 12, Ill., has introduced the Style #250-V 250-lb. capacity



vibration tester, said to be more rugged and trouble-free despite its smaller size. It has a  $\frac{3}{4}$ -hp motor with a variable speed drive, controlled by a synchronous interval timer which shuts the machine off at the proper time. The unit comes complete with a set of low and high fences, plus all guards, and the table size is 30 inches by 36 inches. Speed range is 100-300 rpm, and includes an rpm indicator. Floor area is  $3\frac{1}{2}$  feet by 4 feet, and the tester weighs 500 lbs.

Specifications and other information regarding the #250-V Compact Vibration Tester and similar models in all capacities may be secured from the factory.



**if yours is one of the few plants  
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# MPM

## industry meetings

### ELECTRICAL MANUFACTURERS

First Annual Meeting of Consumer Products Division of National Electrical Manufacturers' Association, Edgewater Beach Hotel, Chicago, Ill., June 1-3, 1960.

### APPLIANCE MANUFACTURERS

Institute of Appliance Manufacturers, Netherland-Hilton Hotel, Cincinnati, Ohio, June 6-10, 1960.

### CHEMICALS

The 43rd Annual Conference and Exhibition of The Chemical Institute of Canada, Chateau Laurier, Ottawa, Ontario, Canada, June 13-15, 1960.

### STOVES AND FURNACES

Canadian Institute of Stove and Furnace Manufacturers Summer Conference, Alpine Inn, Ste. Marguerite Station, Quebec, Canada, June 19-21, 1960.

### REFRIGERATION

American Society of Refrigerating Engineer's Annual Meeting, Royal York Hotel, Toronto, Ontario, Canada, June 20-22, 1960.

### HOME FURNISHINGS

International Home Furnishings Market, The Merchandise Mart, Chicago, Ill., June 20-July 1, 1960.

### KITCHEN CABINETS

Steel Kitchen Cabinet Manufacturers' Association's Annual Meeting, Sheraton Hotel, French Lick, Ind., June 23-25, 1960.

### APPARATUS EXHIBIT

The American Society for Testing Materials' 63rd Annual Meeting and Apparatus Exhibit, Chalfonte-Haddon Hall, Atlantic City, N. J., June 26-July 1, 1960.

### HOUSEWARES

National Housewares Manufacturers' Association's 33rd National Housewares Exhibit, Convention Hall, Atlantic City, N. J., July 11-15, 1960.

### Rheem Executive Honored

Joseph P. Makenas, vice president, operations, Home Products Div., Rheem Mfg. Co., is the 1960 winner of the Bonelli Award. Created by Commendatore Francisco Bonelli, founder and president of S.A.F.I.M., Rheem affiliate in Milan, Italy, the award is given annually to a Rheem executive in the United States for outstanding contributions during the past year. Makenas joined Rheem in 1945.

MPM JUNE • 1960

## GENERAL INDUSTRIES

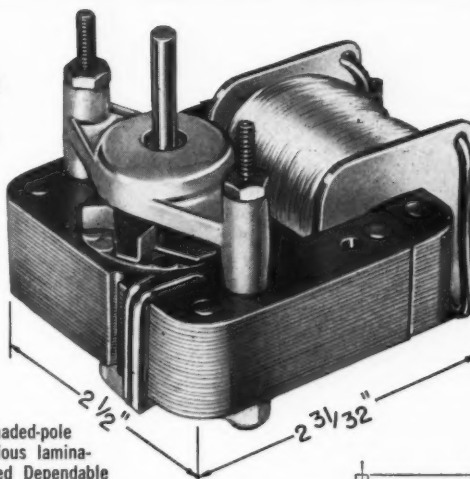
# Smooth Power

## AC MOTORS

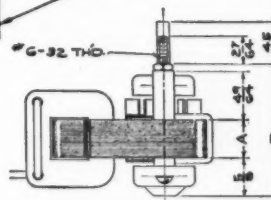
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Specify G.I. to be sure! Nearly half a century of experience in solving the motor problems of large and small motor users throughout the world is your guarantee of satisfaction.

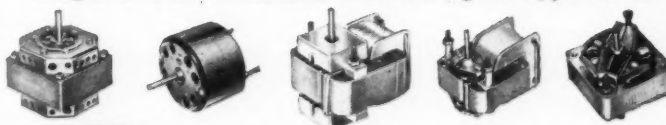


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MODEL	HP 2800 RPM	LOCKED TORQUE in./oz.	MAXIMUM TORQUE in./oz.	FREE SPEED RPM	AMPS FREE	WATTS FREE	A	B	Standard Shaft Diameter .1817  1/4" Diameter Shaft Available If Required
A-3-CW	1/500	0.7	1.1	3360	.275	10	3/8"	1 3/8"	
A-3-CCW									
A-4-CW	1/350	1.0	1.4	3380	.375	14	1/2"	2"	
A-4-CCW									
A-5-CW	1/180	1.7	2.7	3430	.460	17	5/8"	2 1/8"	
A-5-CCW									
A-6-CW	1/130	1.9	3.3	3430	.500	19	3/4"	2 1/4"	
A-6-CCW									
A-7-CW	1/100	2.1	3.8	3500	.530	20	7/8"	2 3/8"	
A-7-CCW									
A-8-CW	1/90	2.5	4.5	3480	.550	23	1"	2 1/2"	
A-8-CCW									
A-9-CW	1/70	2.7	5.3	3520	.620	27	1 1/8"	2 5/8"	
A-9-CCW									
A-12-CW	1/60	3.0	6.5	3500	.720	28	1 1/2"	3"	
A-12-CCW									
A-14-CW	1/50	3.1	7.0	3490	.730	33	1 3/4"	3 1/4"	
A-14-CCW									
A-16-CW	1/45	4.0	7.5	3490	.730	39	2"	3 1/2"	
A-16-CCW									

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## Fabricating line

→ from Page 82

tional stability to the drum shell. The power roll provides the necessary support to weld the lightweight drums by this method.

Attached to the lower front of the welder is the swaging unit, consisting of an upper idler-type roller pressured by air. The lower contoured roll assembly blends the inside contour of the weld seam. Leaving the welding unit, the drum shell is upended and conveyed to the balance of the drum fabricating equipment.

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Inspection of frame slotting operation assures depth control for crossbar "breathing space."

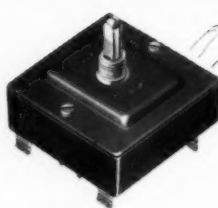


Outer frame gauging and visual cross-bar check insure squareness in accordance with specs.



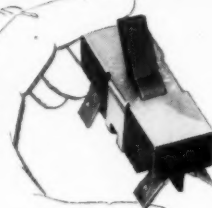
Shape gauging inspection is another control that saves installation time and trouble.

## For Appliance and Related Applications



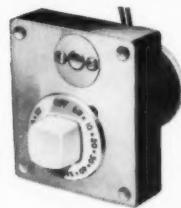
### 1 HEAT SELECTOR SWITCHES

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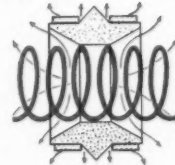
### 3 SINGLE POSITION INFINITE CONTROL

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### 4 TUBULAR HEATING ELEMENT

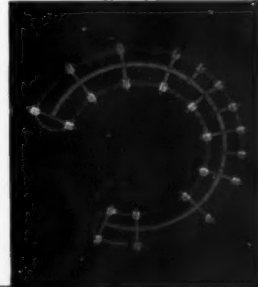
This element is ideal for a wide range of applications. It's highly efficient in heat guns, hair dryers, space heaters, hot food vendors, photo print dryers, and other products where air is to be heated while flowing through a tube or nozzle. It can be controlled thermostatically and furnished in ratings from 500 to 2000 watts at 115 or 220 volts.



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### 5 OPEN COIL HEATING ELEMENTS →

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